



# LYSES AND ENERGY VALUES OF FOODS

BY

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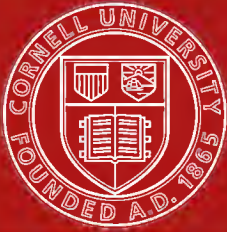
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**R. H. A. PLIMMER, D.Sc.,**

Captain, attached to Directorate of Hygiene, War Office ; Head of the Biochemical Department, Rowett Research Institute of Animal Nutrition, University of Aberdeen and North of Scotland College of Agriculture ; formerly Reader in Physiological Chemistry, University of London, University College.

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## FOREWORD.

AN authoritative series of analyses of the commoner food-stuffs, such as are sold and consumed in this country, has long been required. It is true that a large amount of data is already in existence but this refers, for the most part, to foodstuffs consumed in other countries than our own. The need became urgent during the late war especially when the Army, in common with the other sections of the community, was strictly rationed. Owing to this diversity of values and the lack of a common standard, Captain R. H. A. Plimmer, who is a recognised authority on analytical technique, was directed to make a series of analyses for the use of the Army Medical Authorities. In issuing this report, which has been compiled with exhaustive care and for which great credit is due to Captain Plimmer, it is felt that it may be of value to other branches of His Majesty's Services and form the basis of a common standard of food values.

T. H. J. GOODWIN, *Lt.-General*,  
D.G., A.M.S.

*He 2623 ✓ + 0 ✓ + C°*

## TABLE OF CONTENTS.

	PAGE
1. Introduction ... .. .	5
2. Methods ... .. .	7
3. Meat ... .. .	11
4. Beef : Ox, proportions of parts ... .. .	14
5. " Analytical data ... .. .	18
6. Veal : Calf, proportions of parts ... .. .	32
7. " analytical data ... .. .	34
8. Mutton and Lamb : Sheep, proportions of parts ... .. .	42
9. Mutton, analytical data ... .. .	44
10. Lamb, " " ... .. .	53
11. Pork : Pig, proportions of parts ... .. .	57
12. " analytical data ... .. .	59
13. Bacon, Gammon and Ham, proportions of parts ... .. .	67
14. " " " analytical data ... .. .	69
15. Tinned Meats, analytical data ... .. .	74
16. Eggs ... .. .	75
17. " proportions of parts ... .. .	76
18. " analytical data, fresh ... .. .	77
19. " " " dried ... .. .	79
20. Note on eggs ... .. .	80
21. Milk ... .. .	82
22. " dried, analytical data ... .. .	83
23. Cheese ... .. .	84
24. " analytical data ... .. .	85
25. Butter, Margarine, Dripping, Lard ... .. .	86
26. " " " analytical data ... .. .	87
27. Poultry and Game ... .. .	88
28. " " proportions of parts ... .. .	89
29. " " Chicken, frozen, analytical data ... .. .	95
30. " " Duck " " ... .. .	97
31. " " Goose " " ... .. .	100
32. " " Pigeons " " ... .. .	103
33. " " Turkey " " ... .. .	105
34. " " Grouse " " ... .. .	108
35. " " Partridge " " ... .. .	110
36. " " Pheasant " " ... .. .	112
37. " " Wild Duck " " ... .. .	115
38. " " Hare, Scotch " " ... .. .	118
39. " " Rabbit, Frozen " " ... .. .	120
40. " " Venison (Special Sections), proportions of parts ... .. .	122
41. " " Venison (Special Sections), analytical data ... .. .	123
42. Fish ... .. .	125
43. " proportions of parts ... .. .	126
44. " analytical data... .. .	131
45. Vegetables, Fresh, proportions of parts ... .. .	157
46. " " analytical data... .. .	162
47. Dried Legumes or Pulses, Cereals and Cereal Products, Flour ... .. .	184
48. Legumes, Dried, or Pulses, analytical data ... .. .	185
49. Cereals, analytical data ... .. .	186

TABLE OF CONTENTS—*continued.*

	PAGE
50. Flour, analytical data ... ..	189
51. Bread, Biscuits ... ..	190
52. „ analytical data ... ..	191
53. Biscuits, analytical data ... ..	195
54. Fruits, fresh ... ..	196
55. „ „ proportions of edible and waste ... ..	197
56. „ „ analytical data ... ..	201
57. „ „ dried proportions of parts ... ..	209
58. „ „ analytical data ... ..	210
59. Jam, Honey, etc. ... ..	211
60. „ „ „ analytical data ... ..	212
61. Nuts, proportions of parts ... ..	213
62. „ analytical data ... ..	214
63. Cocoa, Chocolate, Sugar ... ..	216
64. Chocolate, analytical data ... ..	217
65. Cocoa, analytical data ... ..	218
66. Sugar, analytical data ... ..	218
67. Alphabetical Summary of Analyses for Army Use ... ..	219
68. Accessory Food Factors or Vitamines—Appendix ... ..	254



## INTRODUCTION.

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THE food of the individual consists mainly of the three groups of chemical substances—protein, carbohydrate and fat—as supplied by meat, eggs, fish, bread, fruit, vegetables, &c. Water, salts and the accessory food factors are also necessary. A sufficiency of salts is generally present in the ordinary mixed diet, and extra sodium chloride is added according to taste.

The energy value of the food can be ascertained by the direct method of combustion. The total fuel value as so obtained is erroneous physiologically, since this method includes in its results those parts of the food, such as cellulose or fibre, which are not digestible and utilisable by the human organism. More accurate physiological energy values of the food result from its calculation from the chemical composition of the food-stuffs, especially if the proper factors (see below) be used. Hence the chemical composition of the food becomes the basis of its energy value.

Very little attention has been paid in this country to the chemical composition and energy value of foodstuffs. We have the valuable books by Tibbles, Hutchison and other authors on foods and dietetics; also the useful summary by McKillop on food values; but the majority of the food analyses are by foreign workers. The British chemists have, however, made numerous analyses, but their data are scattered over various journals and are not readily available for reference. Most of the chemical analyses quoted in text-books on foods, dietetics and physiology are those of Atwater and Bryant. Their Bulletin, No. 28 of the U.S. Department of Agriculture, corrected 14th April, 1906, on the Chemical Composition of American Food Materials, is an unique compendium of analyses and energy values. Numerous analyses of each kind of foodstuff were made, so that a proper average might be given.

It was with the idea that the War Office (and other departments of the Government) should possess a series of data prepared in this country from the food in common use, both home-grown and imported, that Sir W. H. Horrocks directed the following analyses to be carried out. Such a complete set of data as those of Atwater and Bryant could not be obtained by a single worker in the limited period of time available, but in the time so devoted analyses of most foodstuffs have been made; fewer samples were necessarily taken. The aim has been to arrive at an average for each group of foodstuffs, such as beef from analyses of the various joints, bread from the produce of various bakeries, fish from the group

of white fish, &c. In the cases of meat, fish, &c., the joints were separated into fat and skin and lean, flesh and skin, &c., and the proportions determined so as to calculate the whole. Further, the proportions of the joints of the carcass have been ascertained so that the composition of any part and ultimately of the whole animal can be arrived at. (See under meat, poultry, fish, &c.) The analyses are thus not a replica of those of Atwater and Bryant, but may rather be regarded as a supplement.

The analyses number about 900, it is perhaps of interest that the number of weighings involved were over 20,000. Each analysis, in so far as material was available, was carried out in duplicate, and the mean figure is given. This part of the work was carried out single-handed, except for the groups of animal offal, head, pork, &c., and birds; here the assistance of Mr. A. D. Husband, A.I.C., of the Rowett Research Institute in Animal Nutrition, Aberdeen, was of great value. The preparation of the materials for analysis has been performed under supervision by Sergt. A. Lunn, R.A.M.C., Private P. O. Colville, R.A.M.C., and Sergt. Lowson, R.A.M.C., of the Staff of the Hygiene Department of the Royal Army Medical College, and also of Mr. James Ironside of the above Research Institute, Aberdeen. Without their help and interest in this work it would have been difficult to accomplish the scheme attempted.

---

## ANALYSES AND ENERGY VALUES OF FOODS.

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### METHODS.

The methods which have been used throughout this series of determinations have been those in general use and described in the various text-books of biochemistry, or physiological chemistry, and of food analysis. Modifications, if any, have consisted usually in some slight simplification of the ordinary procedure, so as to ensure as rapid an analysis as possible.

#### 1. *Determination of Water and Ash.*

The usual procedure was adopted. In those cases in which sodium chloride estimations (excepting fresh meat, fresh fish, &c.) were required, the ash was dissolved in dilute nitric acid and the chloride estimated by Volhard's method. On deducting this quantity there remains "other ash." Detailed analyses of the ash were not made.

#### 2. *Determination of Sodium Chloride.*

The determination of sodium chloride in foodstuffs cannot be effected by incineration and further analysis as described above, since, on ashing these substances, sodium chloride is volatilised.

The chlorides are most conveniently estimated by soaking a weighed quantity of the finely minced material (1-2 gm.) in distilled water in a 100 or 200 c.c. measuring flask for about 12-18 hours. The chlorides diffuse out of the tissue in this time, the volume is made up to the mark, the mixture well shaken and filtered into a dry vessel. The chlorides are estimated in a known volume of the filtrate by Volhard's method. The chloride is calculated as sodium chloride.

#### 3. *Determination of Acidity.*

Acidity was estimated in meat, fruits and some other foodstuffs. The data so obtained are not in all cases given in the following tables. It is customary to return acidity figures as lactic acid in the case of meat, as malic acid in the case of fruits. The acidity of meats is most probably due to acid phosphates, and its amount is usually very small. The acidity of fruits is variable, and the data are interesting. The acidity was estimated by soaking a weighed quantity of material in water and sometimes titrating directly, using phenolphthalein as indicator; in other cases, after making up to a volume and filtering.

#### 4. *Determination of Protein.*

Proteins may be estimated by difference in certain cases. They are most commonly estimated by calculations from the amount of nitrogen as determined by Kjeldahl's method.

Protein has been estimated here by calculation from the amount of nitrogen. In carrying out the Kjeldahl method, it has sufficed to heat the material with conc. sulphuric acid (20-25 c.c.) and about 0.25 gm. of copper sulphate. It was not necessary to add potassium sulphate. The oxidation was generally finished in two to three hours, except in those cases in which the material contained a great deal of fat.

Fats and very fatty materials were effectively and rapidly analysed for their nitrogen content by oxidising the residue remaining from the ether extract of the fat estimation.

#### *Calculation of the Amount of Protein. The Protein Factor.*

The amount of protein in foodstuffs is ascertained from the amount of nitrogen by multiplying it by the factor 6.25. This factor is derived from the assumption that all proteins contain 16 per cent. of nitrogen, *i.e.*  $\frac{100}{16}$ .

This figure is correct, or nearly correct, for the proteins of the muscular tissues of animals, birds, fishes, but it is not correct for proteins of other sources. Thus, caseinogen, the chief protein of milk, contains 15.67 per cent. of nitrogen, and the correct factor is 6.38. This factor is now most frequently used for the proteins of milk. It is used here for the proteins of milk and its derivatives, such as cheese.

The 6.25 factor is erroneous for the proteins of eggs, both white and yolk (see under eggs).

Vegetable proteins contain more nitrogen than animal proteins; their nitrogen content varies from 16.38 to 18.73 per cent. It has been suggested that different factors be used for different vegetable proteins, *e.g.* 6 for barley, maize, &c., 5.7 for wheat, rye, &c., 5.5 for cottonseed, nuts, &c., but the suggestion has never been adopted. The 6.25 factor is, at any rate, too high; 5.68 is sometimes used for wheat.

Throughout this series of calculations the factor 5.68 has been used in calculating protein in materials of vegetable origin.

#### *On the Presence of Nitrogenous Substances other than Protein.*

Nitrogenous substances other than proteins are present in the tissues of animals and plants. Alkaloids do not come into consideration in the ordinary foodstuffs. These nitrogenous constituents are generally considered to be waste products, not utilisable by the animal.

Detailed chemical analyses (by isolation of the compounds) has shown that creatine, purine and other bases are present in muscular tissue, creatine to the amount of about 0.5 per cent.

the purine and other bases in still smaller amounts. Urea and amino acids are also present. The amino acids are the constituents of protein, produced in the ordinary course of digestion for the assimilation of protein.

Plant tissues have been found to contain asparagine, glutamine and various amino acids. The two amides, rather than aspartic and glutamic acids, are the real constituents of protein. Hence in the case of plant tissues the greater part, if not all, of the nitrogenous substances are the equivalent of protein; they are, in fact, assimilable protein. Usually these plant substances are arbitrarily excluded, instead of being included; the animal substances are included, instead of being excluded. It is doubtful if creatine is assimilated; the purine bases are not assimilated, but excreted. Sheep, cattle, &c., synthesise creatine from plant food; perhaps man has the same power of synthesis. Total nitrogen has therefore been regarded as entirely protein in this series of analyses and no deductions made. Deductions may in the future be necessary for the animal extractives only, as creatine and the bases are frequently termed.

#### 5. *Determination of "Fat" (Ether Extract).*

This determination was invariably carried out by Soxhlet's method, using ether as solvent. No other method is possible in a long series of routine analyses.

It was found convenient and expeditious to allow the *dried* material for extraction to stand in ether during the night and to proceed next day with the continuous extraction. With a small electric hot plate at least six determinations can be made at the same time; such hot plates afford also other advantages.

#### 6. *Determination of Carbohydrate.*

The small amount of carbohydrate present in animal tissues is negligible. The polysaccharide, glycogen, is known to be present in the liver and heart under almost all normal conditions. The estimation by Pflüger's method is too long for routine practice. The amount of glycogen is given fairly accurately by difference; only lactose in milk is generally estimated separately.

The carbohydrates in vegetable foodstuffs are most commonly glucose, fructose, cane sugar, maltose, starch.

The two monosaccharides have been determined together as "glucose" in the case of fruits. Reducing sugar of this type, probably maltose, was determined in bread. Cane sugar was determined in fruits. The procedure adopted was to soak the desired weighed quantity of material, in presence of 1 per cent. of toluene, in water in a measuring flask for 12 to 18 hours, complete the volume, mix, filter and determine the reducing sugar by Fehling's volumetric method. Cane sugar was subsequently

estimated in another portion of the filtrate after hydrolysis with dilute sulphuric acid ; its amount was represented by the increase in reducing power multiplied by 47/50.

There is no satisfactory method for the routine determination of starch. Its amount is usually represented by difference.

#### 7. *Determination of Fibre or Cellulose.*

The amount of fibre has been estimated by the usual method ; 2 per cent. acid and 2 per cent. alkali were used (see Voelcker, "Analyst," 1918, 43, 31).

#### 8. *General Results of Analyses.*

In all cases where sufficiency of material was available the analyses have been performed in duplicate. The mean of the duplicate figures is given in the following tables.

Frequently the duplicates have not been as close as desired ; this applies most particularly to the analyses of meat and similar foodstuffs. It is fairly attributed to the difficulty of preparing perfectly homogeneous samples ; it is not possible to reduce meat, &c., to such a fine state of division by means of a small mincer so that an even sample always results. The case is similar with those vegetables which are tough. Hence the analytical data have not been returned to more than one place of decimals. The small loss of moisture which occurs in weighing out the samples is another factor to be considered.

#### 9. *Energy Values.*

The energy value of the foodstuffs has been calculated from the analyses of protein, carbohydrate, fat by multiplication with the usual physiological factors, namely, 4·1, 4·1, 9·3 respectively. These factors are the mean of those obtained on a number of foods.

Other factors have been put forward, but not yet adopted. They are suggested so as to make allowance for the digestibility of the foodstuffs. The digestibility of mixed foods is so variable that it is difficult to decide upon suitable other factors. If required, it is better to deduct say one-tenth from the total, if digestibility is taken into consideration. A fuller study of the "biological value of various foods" is really necessary before a change in the above figures is made.

---

## MEAT.

## BEEF, VEAL, MUTTON, LAMB, PORK.

Any figure for the food value of the flesh of the ox, sheep and pig can only be an approximate one, because the flesh varies according to the "fatness" of the animal at the time of its use for food. The deposition of the fat is not the same over the whole body, so that the joints of the carcass, as usually purchased, will have different values, *e.g.*, back and leg. A more accurate food value would be given by the analysis of a whole or half carcass, but such a quantity of material is too great for manipulation in a small laboratory. The small purchaser requires the comparative data of the different joints; the large purchaser wishes to know the value of the carcass as a whole. Hence, to satisfy the needs of both, and to get some representative food value, the plan adopted was the following:—

Sections representing fair samples of the whole joint, and weighing from  $\frac{1}{2}$  to 1 lb., were procured from all the joints as usually cut. On account of the variation in the fat content, the fat and skin were separated from the lean, and the proportions of each determined by weighing. The parts were then separately analysed. From the proportions of fat and lean the figures can easily be calculated for the whole section. With the knowledge of the separate analytical data for lean and for fat and skin, the value for any other proportion than the one here examined can be calculated in the same way. This scheme of calculation from the separate parts assumes that lean and fat and skin have always the same composition. The assumption requires numerous analyses of the lean of fat and thin animals.

A rough value for the carcass can be deduced from these figures.

The correct value for the carcass is only obtainable by knowing the weights of all the joints into which the carcass is cut, since the joints as cut have very different weights.

The amount of bone in these sections is not representative of the bone in the whole carcass, but it is known that the bone of an animal is about 20 per cent. of its weight. A deduction of one-fifth can therefore be made for the whole carcass.

The amount of bone in the section of the joint as used here was not a true proportion, since it was only desired to have a fair section of the fleshy portion.

The quantity of bone in the forequarters of beef was ascertained from Captain C. M. Wills, R.A.S.C. The flesh of the forequarters was used for making sausages, and was separated from the bone for this purpose. As seen from the figures below, there is  $17\frac{1}{2}$  per cent. of bone in the forequarter. A sample of the mixed meat was also supplied for analysis; the analytical data of this meat are very near the analytical data which have been calculated for the whole forequarter.

A similar proportion of bone has been assumed for the hind-quarter.

The suet (kidney fat), kidneys and thin skirt or diaphragm are generally left in the carcase of the animal, although they are sold separately. They are excluded from the data of the carcase, but included in the data of offal.

The head, tail and other parts of the animal are also used for food. Either the whole or half of these parts was procured. They were prepared for analysis in the same way as the sections of the joints, *i.e.*, meat, fat and bone were separated, their proportions determined, and the separate parts analysed.

The various parts of the offal were also analysed, after separation, if necessary, into fat and lean.

The weights of the joints in the various carcasses, the weight of head, tail, &c., and of each organ in the offal, have been ascertained through the kind help of Mr. A. Aiken of Aberdeen; and, further, he made arrangements for determining the live weights of the animals before slaughter, and the weights of each part of the animals after slaughter. With these data it is possible to calculate the food value of the carcase, head, tail, whole of offal and ultimately of the live weights of the animals. The data so collected enable a comparison being made of the food value of the ox, sheep and pig, both of live weights, carcase, offal, &c. As stated above, the food value depends on the "fatness" of the animal.

The animal with the highest food value is the pig, in spite of the comparatively lean nature of the parts here obtained for analyses. The sheep has the next best food value, very close to that of the pig; but here it must be remembered that the sheep was very fat and the average figure is likely to be lower. The average value of mutton is probably nearer the figure as now obtained for the ox.

These data represent only the food value; the commercial value of the animals will also depend upon the value of the skin, tallow fat and other parts of the waste.

The various data are given in the following order:—

- (1) Proportions of parts in live animal, carcase, head, tail, offal, &c.; fat and skin and lean in sections of joints, heart and other parts of offal.
- (2) Analytical data and corresponding energy values.
- (3) Analytical data calculated for parts in sections of joints, offal, tongue, head, tail, carcase, whole animal.

#### *Note on the Food Value of Meat.*

The proper basis of the food value of meat should be of the lean. This part of the meat is eaten by all people, and it suffers very little loss during cooking. The amount of fat in meat is diminished during cooking, and, further, individual taste may discard the whole or part of it. The fat content is thus indeterminate for the individual, and it is not possible to give a figure for the energy value of meat as eaten. A minimum calorie value is that of the lean.



By the ordinary routine method of analysis no discrimination is made between the flesh of the different animals. Modern biochemistry is beginning to insist upon the nature of the amino acid content of the protein, *i.e.*, upon the *quality* of the protein. It is not known whether the meat of different animals has the same composition in amino acids, nor is it known whether fore-quarter meat differs from hindquarter meat, or the meat of young and old animals. The eye and palate can detect the poorer qualities of meat. These contain more gristle and elastic tissue; it is known that the protein of elastic tissue differs from other proteins in composition. The quality of such a protein and also gelatin is not so good physiologically as that of muscle protein.

Biochemical methods are not sufficiently advanced for determining all the amino acids in proteins, but a certain number can be determined with fair accuracy. Such analyses are very lengthy and not suitable for the routine analyses which gives the energy value. Analyses of this nature are being carried out in connection with research on animal nutrition. These data will give a better index of the real food value of meat.

---

## BEEF.

The joints of the carcase, as it is usually cut for consumption consisted of frozen Argentine beef as supplied for Army use in 1917. This beef was of first-rate quality, very similar to prime Scotch beef; it differs mainly in flavour.

The offal was derived from recently slaughtered cattle. Except the tripe, these organs were exactly in the same condition as on removal from the animal. The tripe, stomach (rumen and reticulum) and tripe-head (omasum) were cleaned and as sold for consumption; the yearning (abomasum) and gussie (rectum) were not thus prepared, but the food residues and adhering fat were removed before analysis. Only the muscular coat of the gullet is edible matter, and allowance was made for the interior waste. The organs, such as the heart, were separated from adhering fat, but each was analysed and the value for the whole organ as present in the body was calculated.

Analyses of tallow fat, the fat of the abdomen adhering to the intestines, and of the testis were also made. These parts are not usually consumed, and these data are not included in the final calculations.

The head, tongue and tail were again taken from different animals recently slaughtered. Half a head was obtained and separated into bone, meat, &c., for analysis.

The tongue was also separated into its various parts. The tail was separated into its lean and fat, the remainder was boiled and the extract analysed.

## OX.

## PROPORTIONS OF PARTS.

<i>Live Animal.</i>				<i>Half Carcase.</i>			
		Lb.	Per-centage.			Lb.	Per-centage.
Carcase ...	...	467	53.0	Forequarter ...	...	142	54.2
Head ...	...	19	2.2	Hindquarter ...	...	120	45.8
Offal ...	...	76.25	8.6				
Tail... ..	...	1.75	0.2	Total ...	...	262	100.0
Tongue ...	...	8	0.9				
		572.0	64.9				
Waste—							
Blood ...	...	19					
Fat (Tallow) ...	...	38					
Feet (4) ...	...	14					
Hide ...	...	59					
Intestines ...	...	24					
		154	17.4				
Loss—							
Blood, food resi- dues and water on evaporation ...	...	156	17.7				
Total ...	...	882	100.0				

<i>Forequarter Joints.</i>			
		Lb.	Per-centage.
Brisket ...	...	14	9.9
Chuck ...	...	38	26.8
Clod (fat) ...	...	2	1.4
Fore rib ...	...	19	13.4
Middle rib ...	...	13	9.1
Shin ...	...	9	6.3
Shoulder ...	...	43	30.3
Sticking ...	...	4	2.8
Total ...	...	142	100.0

## PROPORTIONS OF PARTS—continued.

*Hindquarter Joints.*

	Lb.	Per-centage.
Fillet ...	5	4.2
Flank (thin) ...	14	11.7
Leg ...	16	13.3
Rump steak ...	14	11.7
Silverside ...	26	21.7
Sirloin ...	30	25.0
Topside ...	15	12.5
Total ...	120	100.1

*Offal.*

Diaphragm—		
Thick skirt ...	1.25	1.6
Thin skirt ...	1.00	1.3
Gullet ...	0.50	0.7
Heart ...	3.50	4.6
Kidneys ...	1.50	2.0
Liver ...	10.00	13.1
Lungs ...	5.00	6.7
Spleen ...	0.50	0.6
Suet ...	18.00	23.6
Trachea ...	0.50	0.7
Tripe—		
Omasum or head	8.00	10.5
Rumen or stomach	18.00	23.6
Abomasum or yearning	2.25	3.0
Rectum ...	4.75	6.2
Heartbread or kernel ...	0.50	0.6
Pancreas or collop	0.50	0.6
Thymus or sweetbread ...	0.50	0.6
Total ...	76.25	100.0

*Head.*

	Lb.	Per-centage.
Bone ...	13	54.2
Brain ...	1	4.2
Cheeks (2) ...	10	41.6
Total ...	24	100.0

*1 Cheek.*

Bone ...	0.5	14.3
Fat ...	1.5	42.9
Lean ...	1.5	42.9
Total ...	3.5	100.1

*Tail.*

Bone ...	0.5	29.4
Fat ...	0.3	17.7
Lean ...	0.9	52.9
Total ...	1.7	100.0

*Tongue.*

Cartilage ...	0.1	1.4
Root ...	4.8	64.9
Sublingual gland ...	0.1	1.4
Tongue proper ...	2.0	27.0
Skin ...	0.4	5.4
Total ...	7.4	100.1

## PROPORTIONS OF FAT AND LEAN IN SECTIONS OF FOREQUARTER JOINTS.

*Brisket.*

	Gm.	Per-centage.
(1) Fat and skin ...	165	50.8
Lean ...	160	49.3
Total ...	325	100.1
(2) Fat and skin ...	128	28.6
Lean ...	320	71.4
Total ...	448	100.0

*Fore Rib.*

Fat and skin ...	90	30.5
Lean ...	205	69.5
Total ...	295	100.0

*Shoulder.*

	Gm.	Per-centage.
Fat and skin ...	25	13.5
Lean ...	160	86.5
Total ...	185	100.0

*Sticking.*

Fat and skin ...	145	37.5
Lean ...	242	62.5
Total ...	387	100.0

## PROPORTIONS OF FAT AND LEAN IN SECTIONS OF HINDQUARTER JOINTS.

<i>Fillet.</i>				<i>Silverside.</i>			
		Gm.	Per-centage.			Gm.	Per-centage.
Fat and skin	...	61	33.3	Fat and skin	...	34	15.6
Lean	...	122	66.7	Lean	...	184	84.4
Total	...	183	100.0	Total	...	218	100.0
<i>Rump steak.</i>				<i>Leg.</i>			
Fat and skin	...	100	43.3	Fat and skin	...	65	23.0
Lean	...	131	56.8	Gristle	...	21	7.4
Total	...	231	100.1	Lean	...	197	69.6
<i>Topside.</i>				Total	...	283	100.0
Fat and skin	...	57	36.3	<i>Sirloin.</i>			
Lean	...	100	63.7	(1) Fat and skin	...	48	29.1
Total	...	157	100.0	Lean	...	117	70.9
<i>Flank (thin).</i>				Total	...	165	100.0
Bone	...	29	8.0	(2) Fat and skin			
Fat and skin	...	217	59.6	Lean	...	75	33.8
Lean	...	118	32.4	Lean	...	147	66.2
Total	...	364	100.0	Total	...	222	100.0

## PROPORTION OF BONE IN FOREQUARTER.

No. of Carcases.	Lbs.	Bones.		Bones.	
		Marrow.	Small.	Marrow.	Small.
1,316	245,004	Lbs. 12,218	Lbs. 31,333	Percentage.	Percentage.
1,409	262,260	13,047	32,715		
1,638	302,021	14,980	37,779		
4,363	809,285	40,245	101,827	5	12.5
				17.5	

## PROPORTIONS OF LEAN AND FAT IN OFFAL.

<i>Heart.</i>				<i>Tripe. Rumen.</i>			
		Gm.	Per-centage.		Lbs.	Per-centage.	
Lean	...	56	53.3	Glandular portion	7.5	66.7	
Fat	...	49	46.7	Honeycomb portion (Reticulum)	...	0.75	6.7
Total	...	105	100.0	Non-glandular portion	...	1.00	8.9
				Muscular portion	...	2.00	17.8
				Total	...	11.25	100.1
<i>Heartbread.</i>							
Lean	...	140	46.7				
Fat	...	160	53.3				
Total	...	300	100.0				
<i>Testis.</i>				<i>Abomasum.</i>			
Interior	...	260	67.2		Gm.		
Skin, &c.	...	127	32.8	Edible	...	309	32.6
Total	...	387	100.0	Fat	...	498	52.5
				Waste	...	141	14.9
<i>Gullet.</i>				Total	...	948	100.0
Internal waste	...	121	30.6				
Muscular coat	...	274	69.4				
Total	...	395	100.0				
<i>Pancreas.</i>				<i>Rectum.</i>			
Lean	...	364	71.0	Edible	...	1,289	65.2
Fat, &c.	...	148	29.0	Fat	...	539	27.3
Total	...	512	100.0	Waste	...	148	7.5
				Total	...	1,976	100.0

BEEF.  
ANALYTICAL DATA OF FAT AND SKIN AND LEAN IN SECTIONS OF FOREQUARTER JOINTS.

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Total.	Energy Value. Calories per—	
								100 gm.	1 lb.
<i>Brisket—</i>									
(1) Fat and skin...	22.1	0.3	—	9.5	—	65.7	97.6	650.0	2,948.4
Lean ...	61.2	0.8	0.1	18.2	—	19.2	99.5	253.2	1,148.5
(2) Fat and skin...	35.4	0.5	—	10.6	—	53.3	99.8	539.2	2,445.8
Lean ...	69.5	1.1	0.3	20.4	—	8.2	99.5	159.9	725.3
<i>Chuck</i> ...	70.5	1.1	0.1	21.7	—	6.5	99.9	149.4	677.7
<i>Clod (fat)</i> ...	10.5	0.2	—	2.7	—	86.9	100.3	819.2	3,715.9
<i>Fore rib—</i>									
(1) Whole ...	54.4	0.8	0.1	17.6	—	26.1	99.0	314.9	1,428.4
(2) Fat and skin	15.3	0.4	—	4.3	—	79.4	99.4	756.1	3,429.7
Lean ...	68.0	0.9	0.2	20.0	—	9.9	99.0	174.1	789.7
<i>Middle rib</i> ...	63.0	0.9	0.1	20.0	—	16.5	100.5	235.5	1,068.2
<i>Shin</i> (1) ...	71.7	1.0	0.2	23.1	—	4.6	100.6	137.5	623.7
(2) ...	69.8	1.0	0.2	23.1	—	5.0	99.1	141.2	640.5
<i>Shoulder—</i>									
Fat and skin ...	18.3	0.3	—	4.8	—	77.4	100.8	739.5	3,354.4
Lean ...	71.0	1.1	0.1	20.2	—	7.1	99.5	148.9	675.4
<i>Sticking—</i>									
Fat and skin ...	21.7	0.3	—	9.4	—	67.7	99.1	668.2	3,031.0
Lean ...	72.5	1.1	—	21.2	—	4.4	99.2	127.8	579.7
<i>Sausage Meat—</i>									
(1) ...	55.8	0.8	0.1	16.3	—	26.4	99.5	312.4	1,417.1
(2) ...	53.1	0.8	0.2	16.3	—	30.6	101.0	351.4	1,594.0
Mean ...	54.4	0.8	0.1	16.3	—	28.5	100.2	331.9	1,505.6

## BEEF.

## ANALYTICAL DATA OF FAT AND SKIN AND LEAN IN SECTIONS OF HINDQUARTER JOINTS.

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Total.	Energy value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Fillet—</i>										
Fat and skin	12.5	0.2	—	3.9	—	83.4	100.0	791.6	224.4	3,590.7
Lean	65.4	1.0	0.1	20.4	—	12.8	99.7	202.7	57.5	919.5
<i>Flank (thin)—</i>										
Fat and skin	13.2	0.3	—	4.1	—	82.6	100.2	785.0	222.5	3,560.8
Lean	64.2	1.0	0.1	19.5	—	15.1	99.9	220.4	62.5	999.7
<i>Leg—</i>										
Fat and skin	43.2	2.2	—	31.9	—	21.6	98.9	331.7	94.0	1,504.6
Lean	70.1	0.9	0.1	21.7	—	7.3	100.1	156.9	44.5	711.7
<i>Rump steak—</i>										
Fat and skin	10.7	0.3	—	2.9	—	86.3	100.2	814.5	230.9	3,694.6
Lean	69.2	1.2	0.1	21.9	—	7.3	99.7	157.7	44.7	715.3
<i>Silverside—</i>										
Fat and skin	19.5	0.4	—	8.7	—	71.3	99.9	698.8	198.1	3,160.8
Lean	71.6	1.2	0.1	22.1	—	4.9	99.9	136.2	38.6	617.8
<i>Sirloin—</i>										
(1) Fat and skin	10.4	0.1	—	5.3	—	84.8	100.6	810.4	57.4	3,676.0
Lean	69.1	0.9	0.1	21.2	—	9.0	100.3	170.6	48.4	773.8
(2) Fat and skin	10.7	0.2	—	4.5	—	84.4	99.8	803.4	227.8	3,644.2
Lean	66.9	0.8	0.1	21.5	—	10.1	99.4	182.1	51.6	826.0
<i>Topside—</i>										
Fat and skin	11.1	0.2	—	4.1	—	84.7	100.1	804.5	228.1	3,649.2
Lean	71.5	1.1	0.1	22.5	—	4.6	99.8	135.0	38.3	612.4

## BEEF.

## ANALYTICAL DATA OF PARTS OF HEAD AND TAIL.

	—	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Total.	Energy Value. Calories per—		
									100 gm.	1 oz.	1 lb.
<i>Head—</i>											
Brain	...	78.0	1.2	0.1	11.0	—	10.0	100.3	138.1	39.2	626.4
Cheek, fat and skin	...	50.0	0.7	0.1	13.6	—	35.7	100.1	387.8	109.9	1,759.1
" lean	...	73.0	1.2	0.3	20.4	—	5.5	100.4	134.8	38.2	611.4
<i>Tongue—</i>											
Centre	...	64.8	0.9	0.1	15.6	—	19.2	100.6	242.5	68.8	1,100.0
Root	...	38.0	0.5	—	9.4	—	50.8	98.7	511.0	144.9	2,317.9
Sublingual glands	...	71.0	1.1	0.0	17.3	—	7.5	96.9	140.7	39.9	638.2
Skin	...	66.9	1.1	0.8	24.8	—	7.0	100.6	166.8	47.3	756.6
<i>Tail—</i>											
Bone extract	...	—	—	—	8.4	—	13.4	to 100	159.1	43.9	701.7
Fat	...	14.2	0.2	—	6.8	—	79.0	100.2	762.6	216.2	3,459.2
Lean	...	64.6	1.0	0.1	22.2	—	13.5	101.4	216.6	60.2	962.5



## BEEF.

## ANALYTICAL DATA OF OFFAL.

21

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate. By diff.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
Diaphragm—										
Back vein or thick skirt	60.2	0.9	—	18.5	—	19.7	99.3	259.1	73.5	1,175.3
Thin skirt	56.0	0.8	—	17.9	—	25.3	100.0	308.7	87.5	1,400.3
Gullet (muscular coat)	73.0	1.0	—	18.0	—	6.8	98.8	137.0	38.8	621.4
Heart, fat	9.5	0.2	0.1	5.7	—	84.0	99.5	804.6	228.1	3,649.7
" lean...	75.2	1.2	0.1	19.7	0.9	2.9	100.0	111.4	31.6	505.3
Kidney	76.3	1.3	0.5	18.1	—	2.6	98.8	98.4	27.9	446.3
Liver	70.8	1.6	0.1	19.9	4.4	3.2	100.0	129.4	36.7	587.0
Lung	79.0	0.9	0.1	17.8	—	1.7	99.5	88.8	25.2	402.8
Spleen	77.4	1.5	0.1	18.1	—	2.3	99.4	95.6	27.1	433.6
Suet	5.9	0.2	—	1.2	—	93.3	100.6	872.6	247.4	3,958.1
Tallow fat...	20.6	0.4	—	2.4	—	74.7	98.1	704.6	199.8	3,106.1
Trachea	65.8	2.0	—	21.6	—	9.0	98.4	172.3	48.8	781.6
Tripe—										
Stomach, or rumen, glandular portion	82.5	0.2	—	14.8	—	2.0	99.5	79.3	22.5	359.7
" honeycomb, do.	82.0	0.2	—	14.4	—	2.9	99.5	86.0	24.4	390.1
" non-glandular, do.	81.2	0.2	—	15.2	—	2.4	99.0	84.6	24.0	383.8
" muscular do.	76.4	0.4	—	20.0	—	2.2	99.0	102.5	29.1	464.9
" fat (waste)	34.9	0.1	—	3.9	—	61.2	99.1	585.2	165.9	2,654.5
Head or omasum	91.8	0.1	—	7.7	—	0.3	99.9	34.4	9.8	156.0
Abomasum	80.4	1.0	—	15.3	—	3.0	99.7	90.6	25.7	411.0
Rectum	65.4	0.9	—	10.4	—	23.6	100.3	262.1	74.3	1,188.9
Heartbread or kernel, fat	17.7	0.5	0.1	5.0	—	76.4	99.7	731.0	207.2	3,315.8
" lean	51.6	1.4	0.2	11.0	—	35.5	99.7	375.3	106.4	1,702.4
Pancreas or collop, fat	29.0	0.5	0.1	7.0	—	60.0	96.6	586.7	166.3	2,661.3
" lean	73.0	1.8	0.2	17.6	—	7.3	99.9	140.1	39.7	635.5
Thymus or sweetbread	70.8	1.8	0.1	17.0	—	11.0	100.7	172.0	48.8	780.2
Testis, internal portion	84.7	1.2	0.2	11.4	—	1.6	99.1	61.6	17.5	279.4
" skin, &c.	62.0	0.9	0.2	20.0	—	15.0	98.1	221.5	62.8	1,004.7

## BEEF.

ANALYTICAL DATA OF FAT AND SKIN AND LEAN IN FOREQUARTER JOINTS CALCULATED ACCORDING TO PROPORTIONS.

—	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Brisket—</i>										
(1) Fat and skin...	50.8	11.2	0.15	—	4.83	—	33.38			
Lean ...	49.3	30.2	0.39	0.05	8.97	—	9.47			
Whole ...	100.1	41.4	0.54	0.05	13.8	—	42.85	455.1	129.0	2,064.3
(2) Fat and skin...	28.6	10.1	0.14	—	3.03	—	15.24			
Lean ...	71.4	49.6	0.79	0.07	14.57	—	5.86			
Whole ...	100.0	59.7	0.93	0.07	17.6	—	21.1	268.4	76.1	1,217.5
Mean of (1) and (2) whole	—	50.6	0.74	0.06	15.7	—	31.98	361.8	102.6	1,641.1
<i>Chuck (whole)</i>	...	70.5	1.1	0.1	21.7	—	6.5	149.4	42.4	677.7
<i>Fore rib—</i>										
(1) Whole ...	—	54.4	0.8	0.1	17.6	—	26.1			
(2) Fat and skin...	30.5	4.7	0.12	—	1.31	—	24.21	314.9	89.3	1,428.4
Lean ...	69.5	47.3	0.63	0.14	13.90	—	6.88			
Whole ...	100.0	52.0	0.75	0.14	15.21	—	31.09	351.5	100.1	1,601.6
Mean of (1) and (2) whole	—	53.2	0.78	0.12	16.41	—	28.59	333.2	94.5	1,511.4

<i>Middle rib</i>	...	...	—	63.0	0.9	0.1	20.0	—	16.5	235.5	66.8	1,068.2
<i>Shin</i>	...	...	—	71.7	1.0	0.2	23.1	—	4.6	137.5	39.0	623.7
(1) ...	...	...	—	69.8	1.0	0.2	23.1	—	5.0	141.2	40.0	640.5
(2) ...	...	...	—	70.8	1.0	0.2	23.1	—	4.8	139.4	39.5	632.1
Mean of (1) and (2)	...	...	—									
<i>Shoulder—</i>												
Fat and skin	...	...	13.5	2.5	0.04	—	0.65	—	10.45			
Lean	...	...	86.5	61.4	0.95	0.09	17.47	—	6.14			
Whole	...	...	100.0	63.9	0.99	0.09	18.12	—	16.59	228.6	64.8	1,036.9
<i>Sticking—</i>												
Fat and skin	...	...	37.5	8.1	0.11	—	3.53	—	25.39			
Lean	...	...	62.5	45.3	0.69	—	13.25	—	2.75			
Whole	...	...	100.0	53.4	0.8	—	16.78	—	28.14	330.5	93.7	1,499.2

## BEEF.

ANALYTICAL DATA OF FAT AND SKIN AND LEAN IN HINDQUARTER JOINTS CALCULATED ACCORDING TO PROPORTIONS.

—		Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
									100 gm.	1 oz.	1 lb.
<i>Clod (fat)</i>	...	...	10.5	0.2	—	2.7	—	86.9	819.2	232.2	3,715.9
<i>Fillet—</i>											
Fat and skin	...	33.3	4.2	0.07	—	1.30	—	27.77			
Lean	...	66.7	43.6	0.67	0.07	13.61	—	8.54			
Whole	...	100.0	47.8	0.74	0.07	14.91	—	36.31	398.8	113.1	1,809.0
<i>Flank (thin)—</i>											
Bone	...	8.0	—	—	—	—	—	—			
Fat and skin	...	59.6	7.9	0.18	—	2.44	—	49.23			
Lean	...	32.4	20.8	0.32	0.03	6.32	—	4.89			
Whole	...	100.0	28.7	0.50	0.03	8.76	—	54.12	539.2	152.9	2,445.8
<i>Leg—</i>											
Fat and skin	...	23.0	9.9	0.51	—	7.34	—	4.97			
Gristle	...	7.4	—	—	—	—	—	—			
Lean	...	69.6	48.8	0.63	0.07	15.10	—	5.08			
Whole	...	100.0	58.7	1.14	0.07	22.44	—	10.05	185.5	52.6	841.4
<i>Rump steak—</i>											
Fat and skin	...	43.3	4.6	0.13	—	1.26	—	37.37			
Lean	...	56.8	39.3	0.68	0.06	12.44	—	4.15			
Whole	...	100.1	43.9	0.81	0.06	13.7	—	41.52	442.3	125.4	2,006.3

<i>Silverside—</i>											
Fat and skin	...	...	...	...	...	...	...	...	...	...	...
Lean	...	...	...	...	...	...	...	...	...	...	...
	15.6	3.0	0.06	—	1.36	—	11.12	—	—	—	—
	84.4	60.4	1.01	0.08	18.65	—	4.14	—	—	—	—
Whole	...	...	...	...	...	...	...	...	...	...	...
	100.0	63.4	1.07	0.08	20.01	—	15.26	224.0	63.5	1,016.1	—
<i>Sirloin—</i>											
(1) Fat and skin	...	...	...	...	...	...	...	...	...	...	...
Lean	...	...	...	...	...	...	...	...	...	...	...
	29.1	3.0	0.03	—	1.54	—	24.68	—	—	—	—
	70.9	49.0	0.64	0.07	15.03	—	6.38	—	—	—	—
Whole	...	...	...	...	...	...	...	...	...	...	...
	100.0	52.0	0.67	0.07	16.57	—	31.06	356.8	101.2	1,618.4	—
<i>(2) Fat and skin</i>											
Lean	...	...	...	...	...	...	...	...	...	...	...
	33.8	3.6	0.07	—	1.52	—	28.53	—	—	—	—
	66.2	44.3	0.53	0.07	14.23	—	6.69	—	—	—	—
Whole	...	...	...	...	...	...	...	...	...	...	...
	100.0	47.9	0.6	0.07	15.75	—	35.22	392.1	111.2	1,778.6	—
<i>Mean of (1) and (2) whole</i>											
	—	50.0	0.64	0.07	16.16	—	33.14	374.5	106.1	1,748.5	—
<i>Topside—</i>											
Fat and skin	...	...	...	...	...	...	...	...	...	...	...
Lean	...	...	...	...	...	...	...	...	...	...	...
	36.3	4.0	0.07	—	1.49	—	30.75	—	—	—	—
	63.7	45.6	0.70	0.06	14.33	—	2.93	—	—	—	—
Whole	...	...	...	...	...	...	...	...	...	...	...
	100.0	49.6	0.77	0.06	15.82	—	33.68	378.1	107.2	1,715.1	—

## BEEF.

ANALYTICAL DATA OF PARTS OF OFFAL CALCULATED ACCORDING TO PROPORTIONS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate. By diff.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Gullet—</i>										
Interior waste ...	30.6	—	—	—	—	—	—			
Muscular coat ...	69.4	50.7	0.69	—	12.49	—	4.72			
Whole ...	100.0	50.7	0.69	—	12.49	—	4.72	95.1	27.0	431.4
<i>Heart—</i>										
Fat ...	46.7	4.4	0.1	0.09	2.66	—	39.23			
Lean ...	53.3	40.1	0.6	0.05	10.50	0.48	1.55			
Whole ...	100.0	44.5	0.7	0.14	13.16	0.48	40.78	435.2	123.4	1,974.1
<i>Heartbread—</i>										
Fat ...	53.3	9.4	0.3	0.05	2.66	—	40.72			
Lean ...	46.7	24.1	0.7	0.09	5.14	—	16.58			
Whole ...	100.0	33.5	1.0	0.14	7.80	—	57.30	564.9	160.2	2,562.4
<i>Pancreas—</i>										
Fat ...	29.0	8.4	0.1	0.03	0.20	—	17.40			
Lean ...	71.0	51.8	1.3	0.14	12.50	—	5.18			
Whole ...	100.0	60.2	1.4	0.17	12.70	—	22.58	262.1	74.3	1,188.9



BEEF.  
ANALYTICAL DATA OF PARTS OF HEAD, TONGUE AND TAIL CALCULATED ACCORDING TO PROPORTIONS.

—	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Cheek—</i>										
Bone	14.3	—	—	—	—	—	—			
Fat	42.9	21.4	0.3	0.04	5.83	—	15.31			
Lean	42.9	31.3	0.5	0.13	8.75	—	2.36			
Whole	100.1	52.4	0.8	0.17	14.58	—	17.67	224.1	63.5	1,016.5
<i>Head—</i>										
Bone	54.2	—	—	—	—	—	—			
Brain	4.2	3.3	0.1	0.00	0.46	—	0.42			
Cheeks	41.6	21.8	0.3	0.07	6.03	—	7.25			
Whole	100.0	25.1	0.4	0.07	6.49	—	7.67	97.9	27.8	444.0
<i>Tongue—</i>										
Cartilage	1.4	—	—	—	—	—	—			
Root	64.9	24.7	0.3	—	6.10	—	32.97			
Sublingual gland	1.4	1.0	0.0	—	0.24	—	0.11			
Tongue proper	27.0	17.5	0.2	0.03	4.21	—	5.18			
„ skin	5.4	3.6	0.1	0.04	1.34	—	0.38			
Whole	100.1	46.8	0.6	0.07	11.89	—	38.64	408.1	115.7	1,851.1
<i>Tail—</i>										
Bone	29.4	—	—	—	2.47	—	3.94			
Fat	17.7	2.5	0.0	—	1.20	—	13.98			
Lean	52.9	34.2	0.5	0.05	11.74	—	7.14			
Whole	100.0	36.7	0.5	0.05	15.41	—	25.06	296.2	84.0	1,343.6



## BEEF.

DATA OF JOINTS CALCULATED ACCORDING TO PROPORTIONS IN FOREQUARTER, HINDQUARTER AND HALF CARCASS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Forequarter—</i>										
Brisket ...	9.9	5.0	0.07	0.01	1.55	—	3.17			
Chuck ...	26.8	18.9	0.30	0.03	5.82	—	1.74			
Clod (fat) ...	1.4	0.2	0.00	—	0.04	—	1.22			
Fore rib ...	13.4	7.1	0.10	0.02	2.20	—	3.83			
Middle rib ...	9.1	5.7	0.08	0.01	1.82	—	1.50			
Shin ...	6.3	4.5	0.06	0.01	1.45	—	1.11			
Shoulder ...	30.3	19.4	0.30	0.03	5.49	—	5.03			
Sticking ...	2.8	1.5	0.02	—	0.47	—	0.79			
Whole ...	100.0	62.3	0.93	0.11	18.84	—	18.39	248.3	70.4	1,126.3
<i>Hindquarter—</i>										
Fillet ...	4.2	2.0	0.03	0.00	0.63	—	1.52			
Flank (thin) ...	11.7	3.4	0.06	0.00	1.02	—	6.33			
Leg ...	13.3	7.8	0.15	0.01	2.99	—	1.34			
Rump steak ...	11.7	5.1	0.09	0.01	1.60	—	4.86			
Silverside ...	21.7	13.8	0.23	0.02	4.34	—	3.31			
Sirloin ...	25.0	12.5	0.16	0.01	4.04	—	8.29			
Topside ...	12.5	6.2	0.10	0.01	1.98	—	4.21			
Whole ...	100.1	50.8	0.82	0.06	16.60	—	29.86	345.8	98.0	1,568.6
<i>Half Carcase—</i>										
Forequarter ...	54.2	33.8	0.50	0.06	10.21	—	9.97			
Hindquarter ...	45.8	23.3	0.38	0.03	7.60	—	13.68			
Whole ...	100.0	57.1	0.88	0.09	17.81	—	23.65	293.0	83.1	1,329.0
„ Less 17½ per cent. for bone	—	47.1	0.73	0.07	14.69	—	19.51	241.7	68.6	1,096.4



BEEF.  
DATA CALCULATED ACCORDING TO PROPORTIONS IN THE WHOLE ANIMAL.

		Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
									100 gm.	1 oz.	1 lb.
—	—										
Carcass	...	53.0	25.0	0.39	0.04	7.79	—	10.34			
Head	...	2.2	0.6	0.01	0.00	0.14	—	0.17			
Offal	...	8.6	4.8	0.05	0.00	0.97	0.05	0.34			
Tail ...	...	0.2	0.1	0.00	0.00	0.03	—	0.05			
Tongue	...	0.9	0.4	0.01	0.00	0.11	—	0.35			
Waste	...	17.4	—	—	—	—	—	—			
Loss	...	17.7	—	—	—	—	—	—			
Whole ox (live)	...	100.0	30.9	0.46	0.04	9.04	0.05	13.25	160.5	45.5	728.0

## VEAL.

The various parts of the calf were all obtained from recently killed animals, but they were not derived from the same animal. The whole procedure adopted was similar to that with the ox. The main difference between the ox and calf, as used for food, is that fewer joints are cut from the carcase and the foot is generally eaten. The tongue is not separated from the head.

In carrying out the analyses of the head and foot, the bone was ultimately extracted with boiling water and the extract analysed. The tail was boiled in water before analysis, the meat then removed and analysed, and subsequently the extract which, on cooling, solidified to a jelly.

Veal chiefly differs from beef in containing less fat in the muscular tissue; the difference in the lean is not shown by the ordinary chemical analysis.

## CALF.

## PROPORTIONS OF PARTS.

<i>Live Animal.</i>				<i>Offal.</i>			
		Lb.	Per-centage.			Oz.	Per-centage.
Carcase	...	91.80	50.4	Diaphragm—			
Head	...	10.75	5.9	Thick skirt	...	6	2.5
Offal	...	14.75	8.1	Thin skirt	...	7	3.0
Tail	...	0.25	0.1	Gullet	...	4	1.7
				Heart	...	21	8.9
		117.55	64.5	Kidneys	...	11	4.7
				Liver	...	50	21.2
Waste—				Lungs	...	32	13.5
Blood	...	6.00		Spleen	...	6	2.5
Fat (tallow)	...	1.00		Suet	...	16	6.8
Feet	...	5.00		Trachea	...	0.75	0.3
Hide	...	8.00		Tripe—			
Intestines	...	4.25		Rumen* (stomach)	44		18.6
		24.25	13.3	Omasum* (head)	15		6.3
				Abomasum*			
				(yearning)	...	9.5	4.0
Loss—				Rectum*	...	5.75	2.4
Blood, food resi-				Heartbread or kernel	...	2.5	1.1
dues, and water				Pancreas or collop	...	2.5	1.1
on evaporation	...	40.20	22.1	Thymus or sweet-			
				bread	...	3.25	1.4
Total	...	182.00	99.9	Total	...	236.25	100.0
<i>Half Carcase.</i>				<i>Hindquarter.</i>			
Forequarter	...	18.6	40.5			Gm.	
Hindquarter	...	18.8	41.0	Bone	...	8	2.8
Loin	...	8.5	18.5	Marrow	...	4	1.4
				Meat	...	277	95.8
Total	...	45.9	100.0	Total	...	289	100.0
<i>Forequarter.</i>				<i>Loin.</i>			
		Gm.				Gm.	
Bone	...	60	16.1	Bone	...	21	12.5
Meat	...	312	83.9	Meat	...	147	87.5
Total	...	372	100.0	Total	...	168	100.0

\* With attached tallow fat (waste).

## PROPORTIONS OF PARTS—continued.

<i>Half Head.</i>				<i>Tail.</i>			
		Lb.	Per-centage.			Gm.	Per-centage.
Bone	...	2.2	44.9	Bone	...	44	43.1
Brain	...	1.1	22.5	Meat	...	58	56.9
Cartilage	...	0.1	2.0				
Cheek	...	0.8	16.3	Total	...	102	100.0
Tongue	...	0.3	6.1				
Tongue root	...	0.4	8.2				
Total	...	4.9	100.0				

<i>Foot.</i>							
		Oz.					
Bone	...	9.5	59.8				
Marrow	...	0.5	3.1				
Meat	...	5.9	37.1				
Total	...	15.9	100.0				

## PROPORTIONS OF FAT AND EDIBLE IN OFFAL.

<i>Thin Skirt.</i>				<i>Thick Skirt.</i>			
Edible	...	39	75.0	Edible	...	99	72.3
Skin (waste)	...	13	25.0	Skin and Tallow	...	38	27.7
Total	...	52	100.0	Total	...	137	100.0

<i>Tripe, Abomasum.</i>							
Edible	...	272	72.3				
Fat	...	55	14.6				
Waste	...	49	13.0				
Total	...	376	99.9				

<i>Tripe, Omasum.</i>							
Edible	...	430	31.5				
Food residues	...	880	64.5				
Tallow fat	...	55	4.0				
Total	...	1,365	100.0				

<i>Tripe, Rumen.</i>				<i>Tripe, Rectum.</i>			
Edible	...	1,247	87.3	Edible	...	159	69.4
Tallow fat	...	182	12.7	Fat	...	59	25.8
Total	...	1,429	100.0	Waste	...	11	4.8
				Total	...	229	100.0

VEAL.  
ANALYTICAL DATA OF PARTS OF CARCASE, HEAD, FOOT, TAIL.

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Forequarter—</i>										
Meat ...	74.4	1.2	0.1	19.6	—	4.1	99.4	118.5	33.6	537.5
<i>Hindquarter—</i>										
Meat ...	74.1	1.3	0.1	20.4	—	2.7	98.6	108.8	30.8	493.5
Marrow ...	25.0	1.0	0.0	4.7	—	69.2	99.9	662.8	187.9	3,006.5
<i>Loin—</i>										
Meat ...	66.4	1.0	0.1	19.7	—	13.3	100.5	204.5	58.0	927.6
<i>Head—</i>										
Bone, extract	—	—	—	1.2	—	0.1	to 100	5.9	1.7	26.8
Brain ...	82.1	1.2	0.1	9.4	—	7.3	100.1	145.0	41.1	657.7
Cheek ...	69.8	0.9	0.3	18.3	—	9.9	99.2	167.1	47.4	758.0
Tongue ...	77.1	0.9	0.2	17.5	—	2.5	98.0	95.0	26.9	430.9
Tongue root	72.1	1.0	0.3	19.3	—	7.3	100.0	147.0	41.7	666.8
<i>Foot—</i>										
Bone, extract	—	—	—	2.2	—	3.6	to 100	42.5	12.1	192.8
Marrow ...	8.5	0.8	—	1.6	—	89.6	100.5	839.8	238.1	3,809.3
Meat ...	64.5	0.8	—	25.8	—	8.6	99.7	185.8	52.7	842.8
<i>Tail—</i>										
Bone, extract	—	—	—	11.9	—	7.6	to 100	119.5	33.9	542.0
Meat ...	64.6	0.5	—	25.3	—	10.0	100.4	196.7	55.8	892.2

VEAL.  
ANALYTICAL DATA OF OFFAL.

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate. By diff.	Fat.	Total.	Energy Value. Calories per—	
								100 gm.	1 lb.
Diaphragm—									
Thick skirt*	74.7	1.0	—	17.7	—	6.6	100.0	134.0	38.0
Thin skirt*	76.0	1.0	—	17.5	—	5.5	100.0	122.9	34.8
Gullet	79.6	0.9	—	15.9	—	3.1	99.5	94.0	26.6
Heart	78.0	1.2	0.1	14.1	2.0	4.6	100.0	108.8	30.8
Kidneys	77.7	1.4	0.3	16.8	—	2.9	99.1	95.9	27.2
Liver	72.6	1.3	0.1	14.6	10.5	0.9	100.0	111.3	31.6
Lung	78.0	1.4	0.4	16.5	—	2.5	98.8	90.9	25.8
Spleen	76.4	1.4	0.1	20.3	—	1.8	100.0	100.0	28.4
Suet	14.5	0.3	—	5.1	—	79.2	99.1	757.5	214.8
Tallow fat	39.5	0.7	—	6.3	—	53.7	100.2	525.2	148.9
Trachea*	71.4	1.0	—	16.8	—	10.8	100.0	169.3	48.0
Tripe—									
Rumen	81.3	1.2	—	15.7	—	2.1	100.3	83.9	23.8
Omasum	85.9	0.5	—	12.7	—	1.2	100.3	63.2	17.9
Abomasum	81.2	0.8	—	12.5	—	5.1	99.6	98.7	28.0
Rectum	80.3	0.9	—	15.1	—	3.5	99.8	94.5	26.8
Heartbread or kernel	74.9	1.6	0.3	18.3	—	4.9	100.0	120.6	34.2
Pancreas or collop	69.0	1.5	0.2	22.1	—	6.6	99.4	152.0	43.1
Thymus or sweetbread	75.7	2.1	0.2	20.5	—	1.8	100.3	100.8	28.6
Testis	71.0	1.2	—	22.5	—	5.5	100.2	143.4	40.6

C N \* Owing to the organ drying before the analysis could be undertaken, the actual analytical data have been calculated on the basis of the ash being 1 per cent.

VEAL.  
ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS IN CARCASS.

—	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Values. Calories per		
								100 gm.	1 oz.	1 lb.
<i>Forequarter—</i>										
Bone ...	16.1	—	—	—	—	—	—			
Meat ...	83.9	62.4	1.0	0.1	16.44	—	3.44			
Whole ...	100.0	62.4	1.0	0.1	16.44	—	3.44	99.4	28.2	450.9
<i>Hindquarter—</i>										
Bone ...	2.8	—	—	—	—	—	—			
Marrow ...	1.4	0.4	0.0	—	0.07	—	0.97			
Meat ...	95.8	71.0	1.2	0.1	19.54	—	2.59			
Whole ...	100.0	71.4	1.2	0.1	19.61	—	3.56	113.5	32.2	514.8
<i>Loin—</i>										
Bone ...	12.5	—	—	—	—	—	—			
Meat ...	87.5	58.1	0.9	0.1	17.24	—	11.64			
Whole ...	100.0	58.1	0.9	0.1	17.24	—	11.64	178.9	50.7	811.5
<i>Half Carcase—</i>										
Forequarter ...	40.5	25.3	0.4	0.04	6.66	—	1.39			
Hindquarter ...	41.0	29.3	0.5	0.04	8.04	—	1.46			
Loin ...	18.5	10.8	0.2	0.02	3.19	—	2.15			
Whole ...	100.0	65.4	1.1	0.10	17.89	—	5.00	119.9	34.0	543.9



VEAL,  
ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS IN HEAD, FOOT, TAIL.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Values. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Head—</i>										
Bone	...	—	—	—	0.54	—	0.04			
Brain	...	17.6	0.3	0.02	2.01	—	1.56			
Cheek	...	11.5	0.2	0.05	3.00	—	1.62			
Tongue	...	5.3	0.1	0.01	1.21	—	0.17			
Tongue-root	...	6.2	0.1	0.03	1.66	—	0.63			
Cartilage	...	—	—	—	—	—	—			
Whole	...	40.6	0.7	0.11	8.42	—	4.02	71.9	20.4	326.1
<i>Foot—</i>										
Bone	...	—	—	—	1.31	—	2.15			
Marrow	...	0.3	0.0	0.0	0.05	—	2.96			
Meat	...	24.0	0.3	—	9.60	—	3.20			
Whole	...	24.3	0.3	0.0	10.96	—	8.31	122.2	34.6	554.3
<i>Tail—</i>										
Bone	...	—	—	—	5.13	—	3.28			
Meat	...	—	—	—	14.40	—	5.69			
Whole	...	—	—	—	19.53	—	8.97	163.5	46.3	741.6

## VEAL.

ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS IN OFFAL.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb
<i>Thick Skirt—</i>										
Edible ...	72.3	54.0	0.7	—	12.80	—	4.77			
Waste ...	27.7	—	—	—	—	—	—			
Whole ...	100.0	54.0	0.7	—	12.80	—	4.77	96.9	27.5	439.5
<i>Thin Skirt—</i>										
Edible ...	75.0	57.7	0.8	—	13.13	—	4.13			
Waste ...	25.0	—	—	—	—	—	—			
Whole ...	100.0	57.7	0.8	—	13.13	—	4.13	92.2	26.1	418.2
<i>Trachea—</i>										
Edible ...	35.8	25.6	0.7	—	6.01	—	3.87			
Waste ...	64.2	—	—	—	—	—	—			
Whole ...	100.0	25.6	0.7	—	6.01	—	3.87	60.6	17.2	274.9
<i>Tripe, Rumen—</i>										
Edible ...	87.3	71.0	1.1	—	13.71	—	1.83			
Waste ...	12.7	—	—	—	—	—	—			
Whole ...	100.0	71.0	1.1	—	13.71	—	1.83	73.2	20.8	332.0

<i>Tripe, Omasum—</i>												
Edible	...	...	31.5	27.1	0.2	—	4.00	—	0.38			
Waste	...	...	68.5	—	—	—	—	—	—			
Whole	...	...	100.0	27.1	0.2	—	4.00	—	0.38	19.9	5.6	90.3
<i>Tripe, Abomasum—</i>												
Edible	...	...	72.3	58.7	0.6	—	9.04	—	3.69			
Waste	...	...	27.6	—	—	—	—	—	—			
Whole	...	...	99.9	58.7	0.6	—	9.04	—	3.69	71.4	20.2	323.9
<i>Tripe, Rectum—</i>												
Edible	...	...	69.4	55.7	0.6	—	10.48	—	2.43			
Waste	...	...	30.6	—	—	—	—	—	—			
Whole	...	...	100.0	55.7	0.6	—	10.48	—	2.43	65.6	18.6	297.6

## VEAL.

DATA OF OFFAL CALCULATED ACCORDING TO PROPORTIONS OF WHOLE.

—	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
Diaphragm, thick skirt ...	2.5	1.4	0.02	—	0.32	—	0.12			
" thin skirt ...	3.0	1.7	0.02	—	0.39	—	0.12			
Gullet ...	1.7	1.4	0.02	—	0.27	—	0.05			
Heart ...	8.9	6.9	0.11	0.01	1.26	0.18	0.41			
Kidneys ...	4.7	3.6	0.07	0.01	0.79	—	0.14			
Liver ...	21.2	15.4	0.28	0.02	3.10	2.23	0.19			
Lungs ...	13.5	10.5	0.19	0.05	2.23	—	0.34			
Spleen ...	2.5	1.9	0.03	0.00	0.51	—	0.04			
Suet ...	6.8	1.0	0.02	—	0.35	—	5.39			
Trachea ...	0.3	0.1	0.00	—	0.02	—	0.01			
Tripe, Rumen ...	18.6	13.2	0.20	—	2.55	—	0.34			
" Omasum ...	6.3	1.7	0.01	—	0.25	—	0.02			
" Abomasum ...	4.0	2.3	0.02	—	0.36	—	0.15			
" Rectum ...	2.4	1.3	0.01	—	0.25	—	0.06			
Heartbread ...	1.1	0.8	0.02	0.00	0.20	—	0.05			
Pancreas ...	1.1	0.8	0.02	0.00	0.24	—	0.07			
Thymus ...	1.4	1.1	0.03	0.00	0.29	—	0.03			
Whole offal ...	100.0	65.1	1.07	0.09	13.38	2.41	7.53	134.8	38.2	611.4





PROPORTIONS OF BONE, FAT AND SKIN, AND LEAN, IN SECTIONS OF  
PARTS OF CARCASE.

<i>Breast.</i>				<i>Ribs.</i>			
		Gm.	Per-centage.			Gm.	Per-centage.
Bone ...	...	30	11.2	Bone ...	...	34	12.9
Fat and lean ...	...	239	88.8	Fat and skin ...	...	148	56.1
Total ...	...	269	100.0	Lean ...	...	82	31.1
				Total ...	...	264	100.1
<i>Neck.</i>				<i>Loin.</i>			
Bone ...	...	60	22.1	Bone ...	...	19	5.5
Fat... ..	...	72	26.5	Fat and skin ...	...	200	58.1
Gristle ...	...	8	2.9	Lean ...	...	125	36.3
Lean ...	...	132	48.5	Total ...	...	344	99.9
Total ...	...	272	100.0				
<i>Leg.</i>				<i>Shoulder.</i>			
Bone ...	...	9	3.1	Bone ...	...	18	5.4
Fat and skin ...	...	75	26.1	Fat and skin ...	...	120	36.3
Lean ...	...	200	70.0	Lean ...	...	185	55.9
Marrow ...	...	3	1.0	Marrow ...	...	8	2.4
Total ...	...	287	100.2	Total ...	...	331	100.0

MUTTON.  
ANALYTICAL DATA OF PARTS IN SECTIONS OF JOINTS.

			Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Total.	Energy Value. Calories per—		
										100 gm.	1 oz.	1 lb.
<i>Breast—</i>												
Fat and lean	...	...	34.1	0.6	0.1	12.2	—	53.0	100.0	542.9	153.9	2,462.6
<i>Leg—</i>												
Fat and skin	...	...	7.8	0.2	—	4.9	—	87.0	99.9	829.2	235.1	3,761.3
Lean	...	...	70.8	1.1	0.1	21.1	—	7.0	100.1	151.6	43.0	687.7
Marrow	...	...	8.4	0.0	—	1.5	—	89.1	99.0	834.8	236.7	3,786.7
<i>Loin—</i>												
Fat and skin	...	...	6.7	0.0	—	2.8	—	90.0	99.5	848.5	240.6	3,848.8
Lean	...	...	65.8	1.0	0.1	21.6	—	11.8	100.3	198.3	56.2	899.5
<i>Neck—</i>												
Fat and skin	...	...	10.3	0.4	—	4.2	—	84.7	99.6	804.9	228.2	3,651.0
Lean	...	...	54.2	1.0	0.1	17.4	—	25.6	98.3	309.4	87.7	1,403.4
<i>Ribs—</i>												
Fat and skin	...	...	5.6	0.0	—	2.2	—	92.4	100.2	868.3	246.2	3,938.6
Lean	...	...	54.5	1.1	0.1	19.1	—	25.2	100.0	312.7	88.7	1,418.4
<i>Shoulder—</i>												
Fat and skin	...	...	17.0	0.5	—	6.4	—	75.3	99.2	726.5	206.0	3,295.4
Lean	...	...	69.4	11.0	0.1	19.5	—	9.6	99.6	169.2	48.0	767.5
Marrow	...	...	7.1	0.9	—	0.9	—	92.1	101.0	860.2	243.9	3,901.9



## MUTTON.

## ANALYTICAL DATA OF OFFAL.

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate. By diff.	Fat.	Total.	Energy Value. Calories per---		
								100 gm.	1 oz.	1 lb.
Gullet	73.2	0.9	—	18.2	—	7.0	99.3	139.7	39.6	633.7
Heart	77.7	1.1	0.1	16.6	2.9	1.6	100.0	94.8	26.9	430.0
Kidney	75.8	1.3	0.6	17.1	—	3.5	98.3	102.7	29.1	465.9
Liver	71.3	1.6	0.1	21.5	2.5	3.0	100.0	126.3	35.8	572.9
Lung	77.2	1.1	0.2	18.7	—	1.4	98.6	89.7	25.4	406.9
Spleen	74.4	1.6	0.2	18.8	—	3.9	98.9	114.0	32.3	517.1
Suet...	2.5	0.1	—	1.3	—	96.6	100.5	903.7	256.2	4,099.2
Trachea	55.0	1.2	—	17.5	—	26.1	99.8	314.5	89.2	1,426.6
Heartbread or kernel	63.7	1.6	0.1	13.4	—	21.3	100.1	253.0	71.7	1,147.6
Pancreas or collop	71.4	1.9	0.1	19.9	—	5.5	98.8	132.7	37.6	601.9
Thymus or sweetbread	67.6	1.8	0.1	16.6	—	14.7	100.8	204.6	58.0	928.1
Testis—										
Interior	86.1	1.2	0.3	10.6	—	1.1	99.3	53.7	15.2	243.6
Skin	73.1	1.1	0.4	23.0	—	2.8	100.4	120.3	34.1	545.7

## ANALYTICAL DATA OF PARTS OF HEAD.

Brain	78.0	1.4	0.3	10.5	—	10.5	100.7	140.7	42.7	683.6
Cheek meat	54.2	0.9	0.2	18.1	—	27.5	100.9	330.0	93.6	1,496.9
Tongue	57.3	1.0	0.2	12.4	—	27.5	98.4	306.6	86.9	1,390.7
Tongue root	48.0	1.0	0.2	13.4	—	30.3	92.9	336.7	95.5	1,527.3

MUTTON.  
ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF FAT, SKIN AND LEAN IN SECTIONS OF JOINTS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Breast—</i>										
Bone ...	11.2	—	—	—	—	—	—			
Fat and lean ...	88.8	30.3	0.53	0.09	10.83	—	47.06			
Whole ...	100.0	30.3	0.53	0.09	10.83	—	47.06	482.1	136.7	2,186.8
<i>Leg—</i>										
Bone ...	3.1	—	—	—	—	—	—			
Fat and skin ...	26.1	2.0	0.05	—	1.28	—	22.71			
Lean ...	70.0	49.6	0.77	0.07	14.77	—	4.90			
Marrow ...	1.0	0.1	0.00	—	0.02	—	0.89			
Whole ...	100.2	51.7	0.82	0.07	16.07	—	28.50	330.9	93.8	1,501.0
<i>Loin—</i>										
Bone ...	5.5	—	—	—	—	—	—			
Fat and skin ...	58.1	3.9	0.0	—	1.63	—	52.29			
Lean ...	36.3	23.9	0.36	0.04	7.84	—	4.28			
Whole ...	99.9	27.8	0.36	0.04	9.47	—	56.57	564.9	160.2	2,562.4



# MUTTON.

ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS OF OFFAL.

—	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Gullet—</i>										
Internal waste ...	35.6	—	—	—	—	—	—			
Muscular coat ...	64.4	47.1	0.6	—	11.72	—	4.51			
Whole ...	100.0	47.1	0.6	—	11.72	—	4.51	90.0	25.5	408.2
<i>Trachea—</i>										
Cartilage ...	20.0	—	—	—	—	—	—			
Edi ...	80.0	44.0	1.0	—	14.00	—	20.88			
Whole ...	100.0	44.0	1.0	—	14.00	—	20.88	251.6	71.3	1,141.3
<i>Testis—</i>										
Interior ...	73.2	63.0	0.9	0.2	7.76	—	0.80			
Skin ...	26.8	19.6	0.3	0.1	6.16	—	0.75			
Whole ...	100.0	82.6	1.2	0.3	13.92	—	1.55	71.5	20.3	324.3

MUTTON.  
ANALYTICAL DATA OF JOINTS CALCULATED ACCORDING TO PROPORTIONS IN CARCASS.

	—	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
									100 gm.	1 oz.	1 lb.
Breast	...	...	4.0	0.07	0.01	1.42	—	6.17			
Legs...	...	...	17.1	0.27	0.02	5.30	—	9.41			
Loins...	...	...	6.8	0.09	0.01	2.31	—	13.80			
Neck	...	...	1.5	0.03	0.00	0.49	—	1.78			
Ribs...	...	...	1.4	0.02	0.00	0.50	—	4.18			
Shoulders	...	...	8.0	0.13	0.01	2.33	—	6.14			
Whole carcass	...	...	38.8	0.61	0.05	12.35	—	41.48	436.4	123.7	1,979.5
Less 10 per cent. for more bone		—	34.9	0.55	0.04	11.12	—	37.33	392.8	111.4	1,781.7

ANALYTICAL DATA OF PARTS OF HEAD CALCULATED ACCORDING TO PROPORTIONS.

Bone	...	...	—	—	—	—	—	—			
Brain	...	...	6.6	0.1	0.03	0.89	—	0.89			
Cheek meat	...	...	14.1	0.2	0.05	4.71	—	7.15			
Tongue	...	...	3.4	0.1	0.01	0.73	—	1.62			
Tongue root	...	...	2.7	0.1	0.01	0.76	—	1.73			
Whole head	...	...	26.8	0.5	0.10	7.09	—	11.39	135.1	38.3	612.8

## MUTTON.

ANALYTICAL DATA OF PARTS OF OFFAL CALCULATED ACCORDING TO PROPORTIONS.

		Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories—		
									100 gm.	1 oz.	1 lb.
Gullet	...	3.3	1.6	0.02	—	0.39	—	0.15			
Heart	...	8.7	6.8	0.10	0.01	1.44	0.25	0.14			
Kidneys	...	4.3	3.3	0.06	0.03	0.74	—	0.15			
Liver	...	17.4	12.4	0.28	0.02	3.74	0.44	0.52			
Lungs	...	17.4	13.4	0.19	0.04	3.25	—	0.24			
Spleen	...	2.7	2.0	0.04	0.01	0.51	—	0.11			
Suet	...	34.8	0.9	0.03	—	0.45	—	33.62			
Trachea	...	6.5	2.9	0.07	—	0.91	—	1.36			
Heartbread	...	1.1	0.7	0.02	0.00	0.15	—	0.23			
Pancreas	...	1.6	1.1	0.03	0.00	0.32	—	0.09			
Thymus	...	2.2	1.5	0.04	0.00	0.37	—	0.32			
Whole offal...	...	100.0	46.6	0.88	0.11	12.27	0.69	36.93	396.6	112.4	1,799.0

MUTTON.  
DATA CALCULATED ACCORDING TO PROPORTIONS IN WHOLE ANIMAL.

		Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
									100 gm.	1 oz.	1 lb.
Carcase	...	54.6	19.1	0.30	0.02	6.07	—	20.38			
Head	...	2.8	0.7	0.01	0.00	0.20	—	0.32			
Offal	...	5.9	2.8	0.05	0.01	0.72	0.04	2.18			
Waste	...	33.5	—	—	—	—	—	—			
Loss	...	3.1	—	—	—	—	—	—			
Whole sheep (live)	...	99.9	22.6	0.36	0.03	6.99	0.04	22.88	241.6	68.5	1,095.9

## LAMB.

## PROPORTIONS OF PARTS IN SECTIONS OF JOINTS.

<i>Breast.</i>				<i>Neck.</i>			
		Gm.	Per-centage.			Gm.	Per-centage.
Bone ...	...	11	4.4	Bone ...	...	37	14.1
Fat and lean ...	...	240	95.6	Fat and skin ...	...	134	51.1
Total ...	...	251	100.0	Lean ...	...	91	34.7
				Total ...	...	262	99.9
<i>Leg.</i>				<i>Ribs.</i>			
Bone ...	...	4	1.9	Bone ...	...	30	13.9
Fat and skin ...	...	44	20.5	Fat and skin ...	...	90	41.7
Lean ...	...	166	77.6	Lean ...	...	96	44.4
Total ...	...	214	100.0	Total ...	...	216	100.0
<i>Loin.</i>				<i>Shoulder.</i>			
Bone ...	...	23	8.1	Bone ...	...	6	3.0
Fat and skin ...	...	103	36.2	Fat and skin ...	...	75	37.1
Lean ...	...	158	55.7	Lean ...	...	121	59.9
Total ...	...	284	100.0	Total ...	...	202	100.0



LAMB.

ANALYTICAL DATA OF PARTS IN SECTIONS OF JOINTS.

	—	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Total	Energy Value. Calories per—		
									100 gm.	1 oz.	1 lb.
<i>Breast—</i>											
Fat and lean	...	...	0.6	—	12.5	—	54.1	99.3	554.4	157.2	2,514.8
<i>Leg—</i>											
Fat and skin	...	...	0.4	—	6.3	—	78.5	100.0	755.9	214.3	3,428.8
Lean	...	...	1.2	0.1	20.5	—	5.9	99.4	138.9	39.4	630.0
<i>Loin—</i>											
Fat and skin	...	...	0.5	—	5.7	—	77.8	100.2	746.9	211.8	3,387.9
Lean	...	...	1.1	0.1	20.6	—	5.5	98.9	135.6	38.4	615.1
<i>Neck—</i>											
Fat and skin	...	...	0.5	—	6.9	—	73.5	100.0	711.8	201.8	3,228.7
Lean	...	...	1.1	0.1	19.7	—	16.7	99.3	236.1	66.9	1,070.9
<i>Ribs—</i>											
Fat and skin	...	...	0.4	—	8.7	—	70.3	99.7	689.5	195.5	3,127.6
Lean	...	...	0.9	0.1	20.6	—	12.3	99.5	198.8	56.4	901.8
<i>Shoulder—</i>											
Fat and skin	...	...	0.6	—	6.0	—	72.9	100.2	702.6	199.2	3,187.0
Lean	...	...	1.3	0.1	18.7	—	8.7	99.1	157.6	44.7	714.9

LAMB.  
ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS IN SECTIONS OF JOINTS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Breast—</i>										
Bone	4.4	—	—	—	—	—	—			
Fat and lean	95.6	30.7	0.57	—	11.95	—	51.72			
Whole	100.0	30.7	0.57	—	11.95	—	51.72	530.0	150.2	2,404.1
<i>Leg—</i>										
Bone	1.9	—	—	—	—	—	—			
Fat and skin	20.5	3.0	0.08	—	1.29	—	16.09			
Lean	77.6	55.6	0.93	0.08	15.91	—	4.58			
Whole	100.0	58.6	1.01	0.08	17.20	—	20.67	262.8	74.5	1,192.1
<i>Loin—</i>										
Bone	8.1	—	—	—	—	—	—			
Fat and skin	36.2	5.9	0.18	—	2.06	—	28.16			
Lean	55.7	39.9	0.61	0.06	11.47	—	3.06			
Whole	100.0	45.8	0.79	0.06	13.53	—	31.22	345.8	98.0	1,568.6
<i>Neck—</i>										
Bone	14.1	—	—	—	—	—	—			
Fat and skin	51.1	9.8	0.26	—	3.53	—	37.56			
Lean	34.7	21.4	0.38	0.03	6.84	—	5.80			
Whole	99.9	31.2	0.64	0.03	10.37	—	43.36	445.8	126.4	2,022.2



## LAMB.

DATA CALCULATED ACCORDING TO PROPORTIONS IN CARCASE.

—	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
Breast ...	13.1	4.0	0.07	—	1.56	—	6.77			
Legs... ..	33.0	19.3	0.33	0.03	5.68	—	6.82			
Loin... ..	24.4	11.2	0.19	0.01	3.30	—	7.62			
Neck ... ..	5.1	1.6	0.03	0.00	0.53	—	2.21			
Ribs... ..	7.0	2.6	0.04	0.00	0.90	—	2.43			
Shoulders ...	17.6	8.8	0.18	0.01	2.36	—	5.68			
Whole carcase ...	100.2	47.5	0.84	0.05	14.33	—	31.53	352.0	99.8	1,596.7

## PORK.

All the material used in these analyses was derived from recently killed pigs. The animals were not highly fattened, as is seen from the proportions of fat and lean in the sections of the several joints into which the carcass is usually cut.

The pig differs from the ox and sheep in that the skin is cleaned and used as food. The skin was separated before analysis, so that the food value, with and without skin, can be calculated. It is included in the following calculations, though it is often too tough to be really edible. Before analysis, it was necessary to boil the skin in water on account of its toughness; the boiled skin and the extract were analysed. Another point of difference is that the head and trotters are sold with the carcass. The trotter was also boiled in water before analysis; the meat was scraped from the bone and both meat and extract were analysed.

## FIG.

## PROPORTIONS OF PARTS.

<i>Live Animal.</i>				<i>Belly.</i>			
		Lb.	Per-centage.			Gm.	Per-centage.
Carcass	...	122.0	84.1	Bone	...	52	13.0
Offal	...	4.25	2.9	Fat	...	116	29.1
Blood	3.0			Lean	...	199	49.9
Intestines	11.25			Skin	...	32	8.0
		14.25	9.8				
Loss in blood, food residues and water on evaporation	...	4.50	3.1	Total	...	399	100.0
Total	...	145.0	99.9				
<i>Carcass.</i>				<i>Loin.</i>			
Flesh	...	108	88.5	Bone	...	53	16.0
Head	...	12	9.8	Fat...	...	97	29.2
Trotters	...	2	1.6	Lean	...	164	49.4
				Skin	...	18	5.4
Total	...	122	99.9	Total	...	332	100.0
<i>Flesh.</i>				<i>Leg.</i>			
Belly	...	16	13.2	Bone	...	77	15.8
Legs	...	36	29.7	Fat...	...	69	14.2
Loin	...	29	24.0	Lean	...	297	61.1
Shoulders	...	40	33.1	Skin	...	43	8.9
Total	...	121	100.0	Total	...	486	100.0

FIG.

## PROPORTIONS OF PARTS—continued.

[illegible]

PORK.

ANALYTICAL DATA OF PARTS IN SECTIONS OF JOINTS, HEAD, TROTTER.

59

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Belly—</i>										
Fat	13.0	0.2	—	5.9	—	80.7	99.8	774.7	219.6	3,514.0
Lean	66.0	1.0	0.2	20.1	—	12.5	99.8	198.7	56.3	901.3
<i>Leg—</i>										
Fat	38.4	0.6	—	14.5	—	44.5	98.0	473.3	134.2	2,146.9
Lean	73.8	1.0	0.2	19.3	—	6.0	100.3	134.9	38.2	611.9
<i>Loin—</i>										
Fat	8.3	0.1	—	3.1	—	88.9	100.4	839.5	238.0	3,808.0
Lean	66.0	1.1	0.2	21.4	—	11.1	99.8	191.0	54.2	866.4
<i>Shoulder—</i>										
Fat	14.9	0.2	—	6.3	—	78.7	100.1	757.7	214.8	3,436.9
Lean	63.3	1.0	0.2	19.7	—	15.9	100.1	228.6	64.8	1,036.9
<i>Skin, after boiling—</i>										
Extract, jelly	—	—	—	3.7	—	0.9	to 100	23.5	6.7	106.6
Residue	56.2	0.2	—	23.4	—	20.5	100.3	286.6	81.3	1,300.0
Whole skin	—	—	—	27.1	—	21.4	to 100	310.1	88.0	1,406.6
<i>Head—</i>										
Bone, Meat	—	—	—	11.3	—	18.1	to 100	214.7	60.9	973.9
Extract	—	—	—	2.1	—	2.1	to 100	28.1	8.0	127.5
Brain	78.5	1.5	0.4	11.3	—	9.5	100.2	134.7	38.2	611.0
Cheek	46.7	0.6	0.2	13.7	—	34.1	95.3	373.3	105.8	1,693.3
Ear	45.8	0.5	0.1	16.2	—	41.1	103.7	448.7	127.2	2,035.3
Tongue	67.1	1.1	0.1	16.5	—	15.2	100.0	209.0	59.3	948.0
Tongue root	62.1	1.1	0.1	16.8	—	19.5	99.6	250.2	70.9	1,134.9
<i>Trotter—</i>										
Extract	—	—	—	1.4	—	4.3	to 100	45.7	13.0	207.3
Meat	—	—	—	24.1	—	16.3	to 100	250.4	71.0	1,135.8

## PORK.

## ANALYTICAL DATA OF OFFAL.

—	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate. By Diff.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
Blood*	...	85.9	0.6	12.9	—	—	99.5	52.9	15.0	239.9
Gullet	...	65.1	0.9	16.4	—	17.1	99.5	226.3	64.2	1,026.5
Heart	...	75.1	1.0	16.2	1.1	6.4	100.0	130.5	37.0	591.9
Kidney	...	76.6	1.3	17.2	—	3.2	98.4	100.3	28.4	455.0
Liver	...	69.9	1.6	17.1	8.5	2.7	100.0	130.1	36.9	590.1
Lung	...	77.6	1.2	17.7	—	2.4	99.2	94.9	26.9	430.5
Spleen	...	75.8	1.3	17.0	—	5.8	100.1	123.6	35.0	560.7
Trachea	...	59.6	1.3	15.7	—	23.3	100.5	281.1	79.7	1,275.1
Heartbread or kernel	...	47.5	1.0	8.3	—	40.6	97.5	411.6	116.7	1,867.0
Collop or pancreas	...	56.0	1.0	13.1	—	29.3	99.5	326.2	92.5	1,479.6
Sweetbread or thymus	...	74.9	1.6	15.2	—	8.5	100.4	141.4	40.1	641.4

\* Blood is sometimes eaten in the form of sausages. These data are not included in the further calculations.





## PORK.

ANALYTICAL DATA OF PARTS OF JOINTS CALCULATED ACCORDING TO PROPORTIONS.

					Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—	
												100 gm.	1 oz. 1 lb.
<i>Belly—</i>													
...	...	...	...	...	13.0	—	—	—	—	—	—		
Bone	...	...	...	...	29.1	3.8	0.1	—	1.72	—	23.48		
Fat	...	...	...	...	49.9	32.9	0.5	0.10	10.03	—	6.24		
Lean	...	...	...	...	8.0	—	—	—	2.17	—	1.71		
Skin	...	...	...	...									
Whole	...	...	...	...	100.0	36.7	0.6	0.10	13.92	—	31.43	349.4	1,584.9
<i>Leg—</i>													
...	...	...	...	...	15.8	—	—	—	—	—	—		
Bone	...	...	...	...	14.2	5.4	0.1	—	2.06	—	6.32		
Fat	...	...	...	...	61.1	45.1	0.6	0.12	11.79	—	3.67		
Lean	...	...	...	...	8.9	—	—	—	2.41	—	1.91		
Skin	...	...	...	...									
Whole	...	...	...	...	100.0	50.5	0.7	0.12	16.26	—	11.90	278.3	1,262.4
<i>Loin—</i>													
...	...	...	...	...	16.0	—	—	—	—	—	—		
Bone	...	...	...	...	29.2	2.4	—	—	0.91	—	25.96		
Fat	...	...	...	...	49.4	32.6	0.5	0.10	10.57	—	5.48		
Lean	...	...	...	...	5.4	—	—	—	1.46	—	1.16		
Skin	...	...	...	...									
Whole	...	...	...	...	100.0	35.0	0.5	0.1	12.94	—	32.60	356.2	1,615.7

[illegible]

## PORK.

ANALYTICAL DATA OF OFFAL CALCULATED ACCORDING TO PROPORTIONS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Offal—</i>										
Gullet*	3.0	1.4	0.02	—	0.36	—	0.38			
Heart	11.8	8.9	0.12	0.02	1.52	0.13	0.76			
Kidneys	8.8	6.7	0.11	0.01	1.51	—	0.28			
Liver	38.2	26.7	0.61	0.08	6.53	3.25	1.03			
Lungs	17.6	13.7	0.21	0.05	3.11	—	0.42			
Spleen	2.9	2.2	0.04	0.01	0.49	—	0.17			
Trachea*	8.8	4.0	0.09	—	1.05	—	1.55			
Heartbread	2.9	1.4	0.03	0.00	0.24	—	1.18			
Pancreas...	3.0	1.7	0.03	0.00	0.39	—	0.88			
Thymus ...	2.9	2.2	0.05	0.01	0.44	—	0.35			
Whole	99.9	68.9	1.31	0.18	15.64	3.38	7.00	143.1	40.6	649.1

\* Allowing for waste as on p. 61.

## PORK.

DATA OF JOINTS CALCULATED ACCORDING TO PROPORTIONS IN FLESH.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
Belly	...	4.8	0.08	0.01	1.84	—	4.15			
Leg	...	15.0	0.21	0.04	4.83	—	3.53			
Loin	...	8.4	0.12	0.02	3.11	—	7.82			
Shoulder...	...	12.5	0.17	0.04	5.10	—	8.95			
Whole	...	41.7	0.58	0.11	14.88	—	24.45	288.9	81.9	1,310.0

DATA OF PARTS OF CARCASE CALCULATED ACCORDING TO PROPORTIONS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
Flesh	88.5	36.9	0.51	0.10	13.17	—	21.64			
Head	9.8	3.3	0.05	0.01	1.38	—	2.65			
Trotters	1.6	—	—	—	0.22	—	0.17			
Whole carcase	99.9	40.2	0.56	0.11	14.77	—	24.46	288.0	81.7	1,306.4

PORK.  
DATA OF PARTS CALCULATED ACCORDING TO PROPORTIONS IN ANIMAL.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
Carcass	...	—	—	—	12.42	—	20.57			
Offal	...	—	—	—	0.45	0.10	0.20			
Waste	...	—	—	—	—	—	—			
Loss	...	—	—	—	—	—	—			
Whole pig (live)	99.9	—	—	—	12.87	0.10	20.77	246.3	69.8	1,117.2

## BACON, GAMMON AND HAM.

A side of bacon, a whole gammon and a whole ham were used. The side of bacon was one supplied for Army rations at the Royal Army Medical College; the gammon and ham were purchased on the market.

The side of bacon was cut into four sections, each of which was weighed so as to determine its proportion in the whole. Fair samples were cut from these sections, and the samples were divided into fat, lean, skin; the amounts of these were also determined. The chemical analyses were made on these separate portions. From the various data, the values for the separate sections and the whole side are calculated. The skin is probably in most cases not eaten, so that a final deduction has been made for its amount.

The gammon and ham were separated into bone, fat, skin, and their respective amounts determined. Chemical analyses of these separate parts were made; before analysis it was necessary to boil the skin in water on account of its toughness; the boiled skin and the extract were analysed separately. The extract on cooling, in the case of ham, solidified to a jelly; it was analysed as if a solid; the analyses of this jelly and the gammon skin extract are given per 100 gm. After removing the marrow from the bones, the bones were extracted in boiling water; this extract on cooling solidified to a jelly and was treated as a solid.

## PROPORTIONS OF PARTS.

*Side of Bacon.*

4 Sections.		Lb.	Per- centage.	(3) <i>Shoulder.</i>		Gm.	Per- centage.
(1) Back...	...	20	28.2	Bone	...	12.0	5.9
(2) Gammon	...	16	22.5	Fat	...	119.0	58.3
(3) Shoulder	...	21	29.6	Lean	...	70.0	34.3
(4) Streaky	...	14	19.7	Skin	...	3.0	1.5
Total	...	71	100.0	Total	...	204.0	100.0
(1) <i>Back.</i>				(4) <i>Streaky.</i>			
		Gm.	Per- centage.				
Fat	...	98.0	63.6	Fat	...	85.0	67.5
Lean	...	48.0	31.2	Lean	...	33.0	26.2
Skin	...	8.0	5.2	Skin	...	8.0	6.3
Total	...	154.0	100.0	Total	...	126.0	100.0
(2) <i>Gammon.</i>				(3) <i>Shoulder.</i>			
Fat	...	86.5	47.5	All lean and fat	...	641.5	96.3
Lean	...	90.0	49.5	All skin	...	24.5	3.7
Skin	...	5.5	3.0	Total	...	666.0	100.0
Total	...	182.0	100.0				

## BACON, GAMMON AND HAM.

PROPORTIONS OF PARTS—*continued*.

<i>Gammon.</i>				<i>Ham.</i>			
		Gm.	Per-centage.			Gm.	Per-centage.
Bone	...	396	10·1	Bone	...	425	9·3
Fat	...	716	18·4	Fat	...	1,820	39·8
Lean	...	2,507	64·2	Lean	...	2,096	45·8
Marrow	...	23	0·6	Marrow	...	20	0·4
Skin	...	260	6·7	Skin	...	215	4·7
<hr/>				<hr/>			
Total	...	3,902	100·0	Total	...	4,576	100·0
<hr/>				<hr/>			



SIDE OF BACON, GAMMON, HAM.  
ANALYTICAL DATA OF PARTS.

	Water.	Other Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Side of Bacon—</i>										
(1) <i>Back—</i>										
Fat ...	8.5	2.5	—	1.9	—	87.7	100.6	823.4	233.4	3,734.9
Lean ...	54.9	1.8	12.6	19.3	—	11.6	100.2	187.0	53.0	848.2
(2) <i>Gammon—</i>										
Fat ...	9.0	1.7	—	2.3	—	86.6	99.6	814.8	231.0	3,695.9
Lean ...	60.8	2.6	11.4	19.1	—	6.4	100.3	137.8	39.1	625.1
(3) <i>Shoulder—</i>										
Fat ...	9.6	2.0	—	2.3	—	86.0	99.9	809.2	229.4	3,670.5
Lean ...	49.5	1.7	9.0	17.7	—	21.7	99.6	274.4	77.8	1,244.7
(4) <i>Sreaky—</i>										
Fat ...	14.3	4.4	—	3.5	—	77.2	99.4	732.3	207.6	3,321.7
Lean ...	56.3	1.8	13.3	21.5	—	5.9	98.8	143.0	40.5	648.7
(5) <i>Skin ...</i>	41.3	2.1	11.4	35.9	—	9.4	100.1	234.6	66.5	1,064.1
<i>Gammon—</i>										
Fat ...	8.4	2.1	—	4.9	—	82.0	97.4	782.7	221.9	3,550.3
Lean ...	60.1	1.6	10.5	20.9	—	7.8	100.9	158.2	44.9	717.6
Marrow ...	9.4	2.3	—	1.7	—	86.4	99.8	810.5	229.8	3,676.4
Skin ...	59.3	0.5	—	26.7	—	13.2	99.7	232.2	65.8	1,053.3
Skin extract ...	—	—	—	4.2	—	5.1	to 100	64.7	21.2	338.8
Bone extract jelly	77.4	0.6	6.8	4.9	—	8.9	98.6	102.9	29.2	466.7
<i>Ham—</i>										
Fat ...	7.0	1.0	—	3.4	—	87.5	98.9	827.7	234.6	3,754.4
Lean ...	61.5	2.0	6.8	20.3	—	12.3	102.9	197.6	56.0	896.3
Marrow ...	12.1	2.4	—	3.8	—	79.2	97.5	752.1	213.2	3,411.5
Skin ...	63.6	0.7	—	18.7	—	17.4	100.4	238.5	67.6	1,081.8
Skin extract jelly	87.9	0.2	0.9	6.0	—	5.0	100.0	71.1	20.2	322.5
Bone extract jelly	87.7	0.6	1.0	6.3	—	3.6	99.2	59.3	16.8	269.0

## SIDE OF BACON.

ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	—	Per- centage Amount.	Water.	Other Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
									100 gm.	1 oz.	1 lb.
<i>Back—</i>											
Fat	...	63.6	5.4	1.6	—	1.2	—	55.8			
Lean	...	31.2	17.1	0.6	3.9	6.0	—	3.6			
Skin	...	5.2	2.1	0.1	0.6	1.9	—	0.5			
Whole	...	100.0	24.6	2.3	4.5	9.1	—	59.9	594.4	168.5	2,696.2
<i>Gammon—</i>											
Fat	...	47.5	4.3	0.8	—	1.1	—	41.1			
Lean	...	49.5	30.1	1.3	5.6	9.5	—	3.2			
Skin	...	3.0	1.2	0.1	0.3	1.1	—	0.3			
Whole	...	100.0	35.6	2.2	5.9	11.7	—	44.6	462.8	131.2	2,099.3
<i>Shoulder—</i>											
Bone	...	5.9	—	—	—	—	—	—			
Fat	...	58.3	5.6	0.1	—	1.3	—	50.1			
Lean	...	34.3	17.0	0.6	3.1	6.1	—	7.4			
Skin	...	1.5	0.6	0.0	0.2	0.5	—	0.1			
Whole	...	100.0	23.2	0.7	3.3	7.9	—	57.6	568.1	161.0	2,576.9



## GAMMON.

ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

—	Per- centage Amount.	Water.	Other Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
Fat ... ..	18.4	1.5	0.4	—	0.90	—	15.09			
Lean ... ..	64.2	38.6	1.0	6.7	13.42	—	5.01			
Usual edible parts ...	82.6	40.1	1.4	6.7	14.32	—	20.10	245.6	69.6	1,114.0
Skin extract ... ..	6.7	—	—	—	0.28	—	0.34			
Bone extract ... ..	10.1	—	—	—	0.49	—	0.90			
All edible parts ...	99.4	—	—	—	15.09	—	21.34	260.3	73.8	1,180.7
Skin (waste) ... ..	6.7	—	—	—	1.79	—	0.88			
Marrow " ... ..	0.6	0.06	0.01	—	0.01	—	0.52			
Whole Gammon as purchased	100.0				16.89	—	22.74	280.7	79.6	1,273.3

## HAM.

## ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	Per- centage Amount.	Water.	Other Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
Fat ...	39.8	2.8	0.4	—	1.35	—	34.83			
Lean ...	45.8	28.2	0.9	3.11	9.30	—	5.63			
Usual edible parts...	85.6	31.0	1.3	3.11	10.65	—	40.46	419.9	119.0	1,904.7
Skin extract ...	4.7	—	—	—	0.28	—	0.24			
Bone extract ...	9.3	—	—	—	0.59	—	0.33			
All edible parts ...	99.6	—	—	—	11.52	—	41.03	428.8	121.6	1,945.0
Skin, (waste) ...	4.7	—	—	—	0.88	—	0.82			
Marrow " ...	0.4	0.05	0.01	—	0.01	—	0.32			
Whole ham as purchased ...	100.0				12.41	—	42.17	443.1	125.6	2,009.9

TINNED MEATS.  
ANALYTICAL DATA.

	Water.	Other Ash.	Sodium Chloride.	Protein.	Carbohydrate.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
Preserved Meat ...	67.2	1.5	—	24.0	—	7.1	164.4	46.6	745.7
Beef Loaf, Pork added ...	64.3	1.1	2.1	17.6	5.0	9.9	184.7	52.4	837.8
Ham Loaf, Beef added ...	54.6	1.1	2.8	17.9	4.8	18.8	267.9	75.9	1,215.2
Pork Loaf, Beef added ...	56.4	1.1	2.8	18.4	3.9	17.4	253.2	71.8	1,148.5
Veal Loaf, Meat Products added ...	64.2	1.4	2.2	17.4	3.8	11.0	189.2	53.6	858.2
Roast Beef ...	62.9	2.9	—	27.3	—	7.5	181.7	51.5	824.2
Meat and Vegetable ...	70.8	1.8	—	11.7	8.2	7.5	151.3	42.9	686.3
	72.6	1.1	—	10.5	7.7	8.1	150.0	42.5	680.4
	68.6	1.3	—	11.5	9.4	9.2	171.3	48.6	777.0
	68.4	1.4	—	11.2	10.0	9.0	170.6	48.3	773.8
	71.7	1.6	—	10.8	8.7	7.2	146.9	41.6	666.3
	67.6	1.5	—	11.4	11.8	7.7	166.7	47.3	756.1
Tinned Pork and Beans ...	62.5	3.2	—	8.0	21.5	4.8	165.6	46.9	751.2

## SAUSAGE.

Issued 9th August, 1918	...	...	...	...	...	...	...	...	...
	53.5	1.2	1.2	11.2	15.2	17.7	272.9	77.4	1,237.9

## EGGS.

## (A)—FRESH.

Two hens' eggs and two ducks' eggs were procured for analysis. The hens' eggs were a brown-shelled one and a white-shelled one, and were rather larger than the average size. The average size of hens' eggs was determined from the weight of nine eggs purchased without selection.

The eggs were boiled before any determinations were made. The weights of the parts were then ascertained; subsequently the separate whites were combined, chopped as finely as possible and analysed. The yolks were treated in a similar way.

The results of the analyses of both the whites and the yolks show a deficit of between 1.4 and 2.1 per cent. This undetermined matter has been regarded as carbohydrate in calculating the energy value, *i.e.*, its amount has been multiplied by the usual 4.1 factor. Carbohydrates of the type of glucose have been described as being present in eggs.

The values for the whole egg, with and without shell, are calculated from the analytical data and the proportions of the constituents.

## (B)—DRIED.

Six different samples of dried eggs were purchased for analysis. On the average about 10 gm. of dried egg were sold for one fresh egg.

According to the figures obtained from fresh eggs weighing approximately 58 gm. each without shell, and containing 74 per cent. of water, one egg would give about 15 gm. of dried egg. Consequently, one dried egg as sold corresponds to about two-thirds of a fresh egg.

As would be expected, there is a larger amount of all the constituents and of the undetermined matter in dried eggs than in fresh eggs.

The undetermined matter has again been regarded as carbohydrate in calculating the energy value. (See note, p. 80.)

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EGGS. (A)—FRESH.  
PROPORTIONS OF PARTS.

				Per-centage.		Gm.		Per-centage.		Per cent.	
				Gm.	centage.	Gm.		centage.		Per cent.	
<i>Hen's White-shelled—</i>											
Shell	...	7	10.6	White	...	20	66.1				
White	...	39	59.1	Yolk	...	39	33.9				
Yolk	...	20	30.3			—	—				
Total	...	66	100.0	Total	...	59	100.0				
				Mean,							
<i>Hen's Brown-shelled—</i>											
Shell	...	6	9.5	White	...	38	66.7	Shell	...	10.1	White
White	...	38	60.3	Yolk	...	19	33.3	White	...	59.7	Yolk
Yolk	...	19	30.2			—	—	Yolk	...	30.2	
Total	...	63	100.0	Total	...	57	100.0	Total	...	100.0	Total

Mean weight 64.5 gm. = 2.3 oz.

Weight of 9 eggs = 582.2 gm. . . , average weight of 1 egg = 55.8 gm. = 2 oz.

<i>Ducks' Eggs—</i>									
Shell	...	8	10.6	White	...	38	56.7	Mean.	
White	...	38	50.7	Yolk	...	29	43.3		
Yolk	...	29	38.7			—	—		
Total	...	75	100.0	Total	...	67	100.0		
Shell	...	8	11.5	White	...	36	58.1	Shell White Yolk	...
White	...	36	51.4	Yolk	...	26	41.9		
Yolk	...	26	37.1			—	—	Total	...
Total	...	70	100.0	Total	...	62	100.0		
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Shell	...	10.1	White	...	33.6
White	...	59.7	Yolk	...	66.4
Yolk	...	30.2			
Total	...	100.0	Total	...	100.0

Shell	...	11.1	White	...	57.4
White	...	51.0	Yolk	...	42.6
Yolk	...	37.9			
Total	...	100.0	Total	...	100.0



EGGS. (A)—FRESH.  
ANALYTICAL DATA.

	Water.	Ash.	Protein.	Carbo- hydrate.	Fat.	Un- deter- mined.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Hens' Eggs—</i>										
White ...	87.2	0.6	10.7	—	0.10	1.40	100	50.5	14.3	229.1
Yolk ...	47.1	2.0	15.5	—	33.30	2.10	100	381.4	108.1	1,730.0
<i>Ducks' Eggs—</i>										
White ...	87.5	0.7	10.0	—	0.03	1.77	100	48.8	13.70	219.5
Yolk ...	45.1	1.5	15.3	—	36.50	1.60	100	408.7	115.9	1,853.9

EGGS. (A)—FRESH.  
ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	Per-centage Amount.	Water.	Ash.	Protein.	Carbo-hydrate.	Fat.	Un-deter-mined.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
(A) Without Shell—										
Hens' Eggs, White	66.4	57.9	0.4	7.1	—	0.07	0.93			
" " Yolk	33.6	15.8	0.7	5.2	—	11.19	0.71			
Whole	100.0	73.7	1.1	12.3	—	11.26	1.64	161.9	45.9	734.4
Ducks' Eggs, White	57.4	50.4	0.4	5.7	—	0.02	1.02			
" " Yolk	42.6	19.2	0.6	6.5	—	15.55	0.68			
Whole	100.0	69.6	1.0	12.2	—	15.57	1.70	201.8	57.2	915.4
(B) With Shell—										
Hens' Eggs, Shell	10.1	—	—	—	—	—	—			
" " White	59.7	52.1	0.4	6.4	—	0.06	0.80			
" " Yolk	30.2	14.2	0.6	4.7	—	10.06	0.60			
Whole	100.0	66.3	1.0	11.1	—	10.12	1.40	145.3	41.2	659.1
Ducks' Eggs, Shell	11.1	—	—	—	—	—	—			
" " White	51.0	44.6	0.4	5.1	—	0.01	0.90			
" " Yolk	37.9	17.1	0.6	5.8	—	13.83	0.61			
Whole	100.0	61.7	1.0	10.9	—	13.84	1.51	179.5	50.9	814.2

EGGS. (B)—DRIED.  
ANALYTICAL DATA.

		Water.	Ash.	Protein.	Carbo- hydrate.	Fat.	Un- deter- mined.	Total.	Energy Value. Calories per—		
									100 gm.	1 oz.	1 lb.
Sample No. 1	...	6.1	4.1	42.3	—	39.0	8.5	100	571.0	161.9	2,590.0
" 2	...	8.0	3.8	40.6	—	36.5	11.1	100	551.4	156.3	2,501.2
" 3	...	4.6	4.4	36.7	—	45.5	8.8	100	609.7	172.8	2,765.6
" 4	...	9.3	3.7	41.7	—	36.4	8.9	100	546.0	154.8	2,478.7
" 5	...	5.8	3.8	41.4	—	41.0	8.0	100	583.8	165.5	2,648.1
" 6	...	6.0	3.9	39.1	—	39.4	11.6	100	574.3	162.8	2,605.9
Mean	...	6.6	3.9	40.3	—	39.6	9.5	100	572.7	162.3	2,598.1

## NOTE ON EGGS.

*The Chemical Composition of Eggs and the Protein Factor.*

Osborne and Campbell\* have shown that egg-white contains four distinct proteins: Ovomucin (formerly globulin), ovalbumin (crystallisable), conalbumin and ovomucoid. Ovomucin forms about 7 per cent. of the protein matter. The three other proteins seem to be present in variable amounts, but in one case (allowing 7 per cent. for ovomucin) the proportions were 37 per cent. of ovalbumin, 34 per cent. of conalbumin and 22 per cent. of ovomucoid. These proteins were found to have the following percentages of nitrogen: Ovomucin, 14.7; ovalbumin, 15.5; conalbumin, 16.1; ovomucoid, 12.4. Only conalbumin, from its nitrogen content, can thus have a protein factor of 6.25 ( $\frac{100}{16}$ ). The others have a higher factor. From the proportions given above, the total nitrogen of the protein matter works out at 14.87 per cent. The factor 6.7 would thus be required for the protein of egg-white. Using this factor instead of 6.25, the amount of protein in egg-white becomes 11.5 and 10.7 per cent. in fresh hens' egg and ducks' egg respectively. The amount of undetermined matter is reduced, but not eliminated. It probably consists of traces of carbohydrate and nitrogenous constituents of various kinds.

Egg-yolk contains vitellin as the chief protein. Another protein, livetin,† occurs in egg-yolk. Vitellin contains 15.19 per cent. of nitrogen; livetin 14.99 per cent. The protein factors are thus 6.58 and 6.67 respectively. The amounts of each protein in egg-yolk are variable, but a mean factor of 6.62 could well be employed for calculating the amount of protein from the nitrogen content. Using this factor, the amount of protein becomes 16.4 and 16.3 per cent. in fresh hens' yolk and ducks' yolk respectively. Another protein has also been described.

Included in this figure for nitrogen is the nitrogen present in "Lecithin." There are very few data of the amount of lecithin in egg-yolk, and no correction can be made for this error. "Lecithin" is also included under fat.

Egg-yolk also contains carbohydrate, but it is not altogether justifiable to think that the whole of the undetermined matter is carbohydrate.

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\* *J. Amer. Chem. Soc.*, 1900, 22, 422.    † *Plimmer, J. Chem. Soc.*, 1908, 98, 1500.

*Comparison of Fresh Eggs and Dried Eggs.*

If the data for fresh eggs and dried eggs be calculated moisture free, the following figures result :—

—	Ash.	Protein.	Fat.	Un- deter- mined.
Fresh Hens' Eggs ...	4·2	46·8	42·8	6·2
„ Ducks' Eggs ...	3·3	40·1	51·2	5·4
Dried Eggs, Sample No. 1	4·4	45·0	41·5	9·1
„ „ „ „ 2	4·1	44·1	39·7	12·1
„ „ „ „ 3	4·6	38·5	47·7	9·2
„ „ „ „ 4	4·1	46·0	40·1	9·8
„ „ „ „ 5	4·0	43·9	43·5	8·6
„ „ „ „ 6	4·1	41·6	41·9	12·4

They show that the commercial dried egg contains a greater amount of undetermined matter than fresh eggs. The dried eggs contain no addition of foreign carbohydrate. A possible explanation for this greater amount of undetermined matter is that the eggs used in making commercial dried eggs are not absolutely fresh, *i.e.*, have been kept for a time after laying by the hen. As a result of keeping, these eggs may undergo metabolic changes consisting in the de-amination of the protein. On drying, the ammonia so produced would be lost and a non-nitrogenous constituent remain. This constituent would raise the amount of undetermined matter. It is proposed to test this supposition. (See also note under cheese.)

## MILK.

## (1) FRESH.

Owing to the difficulty of obtaining proper samples of milk, it is best to employ those data for milk, which have been agreed to by various analytical chemists, as representing its true composition, namely :—

Water.	Ash.	Protein.	Carbo- hydrate (Lactose)	Fat.	Energy Value. Calories per—		
					100 gm.	1 oz.	1 lb.
87.6	0.7	3.3	4.8	3.6	66.8	18.9	303.0

## (2) DRIED.

A few analyses of dried milk were made. Dried milk may be the product of whole milk, or of skim milk. The smaller fat content of the latter is shown in the analytical data.

MILK, DRIED.  
ANALYTICAL DATA.

Sample No.	1...	...	...	...	Water.	Ash.	Protein.	Carbo- hydrate. (lactose)	Fat.	Un- deter- mined.	Energy Value. Calories per—		
											100 gm.	1 oz.	1 lb.
1...	1...	...	...	...	4.2	6.8	28.8	41.0	12.9	6.3	406.2	115.2	1,842.5
"	2...	...	...	...	6.3	5.7	23.7	35.9	24.9	3.5	475.9	134.9	2,158.7
"	3...	...	...	...	4.2	6.0	25.2	34.3	23.4	6.9	461.6	130.9	2,093.8
"	4...	...	...	...	4.7	5.8	24.2	49.0	11.2	5.1	404.3	114.6	1,833.9

## CHEESE.

Cheese may be divided into several groups :—

- A. Soft cheeses, in which the whey is not completely pressed out.
- B. Hard cheeses, made from *full milk*, in which the whey is pressed out more completely.
- C. Hard cheeses, made from *skim milk*, in which the whey is pressed out more completely.
- D. Hard cheese, made from *full milk*, but with *added cream*.
- E. Extra hard cheeses which have been specially treated so as to squeeze out as much whey as possible.

The analyses distinctly show to which class they belong.

In all cases the analyses show that there is a considerable amount of matter not included as protein or fat. This amount is generally either neglected or returned as carbohydrate (lactose). A consideration of the method of cheese making, in which the milk is exposed to the air, which abounds in lactic acid bacteria, must lead to the conclusion that the lactose will be fermented away. Such high figures as 11 and 12 per cent. in the case of Caerphilly are opposed to the view of the presence of lactose in cheese. This amount is nearly three times the amount of lactose in milk; and liquid is removed in cheese making. All the cheeses have been carefully tested for reducing material (lactose). It was found to be absent in all cases except Dorsella; here traces of reducing matter, probably lactose, were present. This cheese is a fresh cheese made in a different way to the ordinary cheese, and this would account for the presence of traces of lactose. Further consideration as to the nature of this undetermined matter leads to the conclusion that, in the process of cheese making, part of the protein is hydrolysed by the bacteria, and on further action of the bacteria the amino acids so formed lose nitrogen, *i.e.*, undergo de-amination. Investigators have found ammonia and other bases in cheese, and if a piece of cheese be ground up and smelt, there is always a distinct smell of ammonia and bases. The product resulting from the de-amination of amino acids may be a fatty acid, or a hydroxy acid, and its calorie value would be approximately equivalent to that of protein or carbohydrate. The undetermined matter has been reckoned as carbohydrate in calculating the energy value.

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## CHEESE.

## ANALYTICAL DATA.

Variety.	Water.	Other Ash.	Sodium Chloride.	Protein.	Fat.	Un-deter-mined.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
A. <i>Soft</i> —									
Little Wilts	40.4	1.5	1.9	22.0	32.3	1.9	398.4	112.9	1,807.1
Sample No. 1	48.0	2.1	1.5	21.9	24.7	1.8	326.9	92.7	1,482.8
" 2	34.8	2.4	0.9	22.3	33.9	5.7	430.1	121.9	1,950.9
Mean	41.1	2.0	1.4	22.1	30.3	3.1	385.1	109.2	1,746.8
B. <i>Hard (Full Milk)</i> —									
English Cheddar	33.7	2.6	1.8	25.2	33.4	3.3	427.5	121.2	1,939.1
Government "	28.6	2.4	1.8	27.6	38.3	1.3	474.7	134.6	2,153.2
Army "	35.9	2.6	1.6	24.9	30.3	4.7	403.2	114.3	1,828.9
" "	30.8	2.4	1.8	24.6	37.3	3.1	460.5	130.6	2,088.9
Cheshire	34.9	2.8	2.1	22.7	33.8	3.7	422.6	119.8	1,916.9
Gloucester	30.9	2.7	1.6	25.6	36.6	2.6	456.0	129.3	2,068.4
Wensleydale	26.3	3.1	3.1	29.2	35.1	3.2	459.3	130.2	2,083.4
Mean	31.6	2.7	2.0	25.7	35.0	3.1	443.4	125.7	2,011.3
C. <i>Hard (Skim Milk)</i> —									
Blue Dorset	33.7	2.8	2.6	41.9	14.4	4.6	324.6	92.0	1,472.4
Caerphilly	43.0	3.1	2.1	27.2	13.4	11.2	282.1	80.0	1,279.6
"	47.7	3.4	1.9	27.6	7.0	12.4	229.1	64.9	1,039.2
Mean	41.5	3.1	2.2	32.2	11.6	9.4	278.6	79.0	1,260.4
D. <i>Hard (+ added Cream)</i> —									
Stilton	24.6	1.4	2.4	26.3	42.8	2.5	516.1	146.3	2,341.0
E. <i>Extra Hard</i> —									
Parmesan (Argentine)	26.4	4.0	2.6	33.7	34.9	4.4	480.8	136.3	2,180.9

## BUTTER, MARGARINE, DRIPPING, LARD.

As is well known, these foodstuffs consist essentially of fat and their energy value is entirely due to this constituent. The amount of protein present in butter and margarine is a negligible quantity. Butter and margarine have a lower energy value than dripping and lard, owing to their content of water and salt. It is owing to the variability in amount of these two constituents that there are differences in the proportion of fat.

The important factor of the presence of fat-soluble A in these fats should not be neglected. The absence of this substance from the diet appears to be the cause of rickets. Butter contains this unknown substance; lard does not contain it; dripping does not appear to have been tested, but owing to the stability of this unknown factor to heat, fat-soluble A is probably present.

Three types of margarine can be purchased on the market, one made from vegetable fats, another entirely from animal fats, and the third from a mixture of animal and vegetable fats. The margarine made from vegetable fats is usually the cheapest product. The vegetable fats derived from seeds, as used in margarine making, do not contain fat-soluble A, and hence this type of margarine is deficient in accessory factor. The other type, to which the olein fraction of animal fat is frequently added to make the consistency nearer that of butter, will be comparatively rich in fat-soluble A.

Numerous varieties of margarine are now on the market, but without adequate knowledge of their manufacture, a fair statement as to the presence or absence of fat-soluble A is not possible. It is to be hoped that the manufacturers are taking notice of the scientific data concerning fat-soluble A, as only in this way can a margarine be made equal to butter as a food-stuff. Further details concerning Accessory Food Factors will be found in the Report of the Medical Research Committee of 1919.

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## FATS: BUTTER, MARGARINE, DRIPPING, LARD.

## ANALYTICAL DATA.

	Water.	Sodium Chloride.	Other Ash.	Un-deter-mined.	Protein.	Carbo-hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Butter</i>										
Cornish ...	13.8	2.3	—	2.3	—	—	81.6	758.9	215.2	3,442.4
Fresh Scotch ...	13.9	0.2	0.2	0.5	0.4	—	84.3	785.6	222.7	3,563.5
Mean ...	—	—	—	—	—	—	—	772.2	218.9	3,502.9
<i>Margarine—</i>										
Sample No. 1 ...	13.6	1.7	—	0.9	—	—	84.3	784.0	221.3	3,556.2
" 2 ...	13.5	2.0	—	2.5	—	—	82.8	770.0	218.3	3,492.7
" 3 ...	11.6	0.0	0.0	0.2	0.1	—	87.7	816.0	231.3	3,701.4
" 4 ...	13.1	1.1	1.2	—	0.1	—	84.1	782.5	221.8	3,549.4
" 5 ...	11.9	1.3	0.3	0.5	0.3	—	85.3	794.5	225.2	3,603.9
" 6 ...	14.7	1.4	0.5	—	0.3	—	83.9	781.5	221.6	3,544.9
" 7 ...	12.6	1.2	0.3	0.1	0.3	—	85.3	794.5	225.2	3,603.9
Mean ...	—	—	—	—	0.2	—	84.8	789.0	223.5	3,578.9
Dripping ...	—	—	—	—	—	—	100.0	930.0	263.7	4,218.5
Lard ...	—	—	—	—	—	—	100.0	930.0	263.7	4,218.5

## POULTRY AND GAME.

Except chicken and rabbit, the birds and animals used were purchased on the market. The chicken and rabbit were frozen articles from those supplied for the Army. The chicken was a "war" specimen, the rabbit an average properly nourished animal. Only two joints of venison were taken for analysis, as it was not desired to get more than a comparison of deer flesh with other flesh.

The bird or animal was separated into its several parts, each part being weighed so as to ascertain its proportion to the whole. For comparison the proportions are shown in pairs in the following tables. During the dissection a certain quantity of water is lost by evaporation. This has not been determined, on account of its variability, depending on the temperature of the room, rate of dissection and other minor factors. The total weight is that of the addition of the separate parts; these were weighed as soon as the dissection was completed.

The chemical analysis of the several parts was carried out as soon as the several parts were separated and minced, so as to avoid further loss of water by evaporation. Bones and carcass, sometimes also head and neck, were extracted together with boiling water and the extract analysed; in other cases the head and neck were boiled in water separately, the meat scraped off and analysed, and also the extract.

From the analytical data and the proportions, the values for the muscle, offal and whole bird or animal are calculated.

Just as was found with beef, mutton, etc., the analytical data do not as a rule total 100. The difference, as before, is to be attributed mainly to the difficulty of procuring proper samples; the tissues are tough, and not capable of fine disintegration by a small mincer, even after passing through the machine two or three times. Only the heart and liver have been assumed to contain carbohydrate (glycogen); we are not justified in thinking that the difference in the other organs is due to carbohydrate. Scarcely any analyses of glycogen have been made in these animals.

Very few analyses of rabbit appear in the text books. These data lead to the conclusion that the data quoted by König are for the animal including offal, and those by McKillop for the flesh only.

The analytical data for tinned rabbit are included for comparison. Only one specimen of each animal or bird (except pigeon) was analysed. All data will be variable, as they depend on the condition of the animal or bird at the time of its use for food—whether it is fattened or not fattened; the values now determined do not deviate greatly from other values.

## POULTRY AND GAME.

## PROPORTIONS OF PARTS.

	<i>Frozen Chicken.</i>				<i>Turkey.</i>			
	Gm.		Per cent.		Gm.		Per cent.	
<i>Muscle—</i>								
Back .. ..	32		2.6		71		2.5	
Breast .. ..	145		11.9		638		22.3	
Leg .. ..	202		16.5		447		15.6	
Wing .. ..	48		3.9		143		5.0	
Skin .. ..	75		6.1		195		6.8	
		502		41.0		1494		52.2
Brain .. ..	—		—		—		—	
Comb .. ..	8		0.7		—		—	
Gizzard .. ..	22		1.8		118		4.1	
Heart .. ..	12		1.0		20		0.7	
Kidneys .. ..	2		0.2		15		0.5	
Liver .. ..	20		1.6		55		1.9	
Lungs .. ..	13		1.1		13		0.5	
		77		6.4		221		7.7
Leg Bones .. ..	60		4.9		148		5.2	
Wing Bones .. ..	42		3.4		100		3.4	
		102		8.3		248		8.6
Head and Neck					211		7.3	
Carcase					364		12.7	
Intestines	546		44.5		215		7.5	
Feet		546		44.5	116		4.0	
Total .. ..		1227		100.2		2869		100.0

## POULTRY AND GAME.

## PROPORTIONS OF PARTS.

	<i>Duck.</i>				<i>Goose.</i>			
	Gm.		Per cent.		Gm.		Per cent.	
<i>Muscle—</i>								
Back .. ..	24		1.1		48		1.3	
Breast .. ..	280		13.0		470		13.1	
Leg .. ..	174		8.1		372		10.4	
Wing .. ..	107		5.0		238		6.6	
Skin .. ..	702		32.7		470		13.1	
Brain .. ..	5	1287	0.2	59.9	11	1598	0.3	44.5
Fat .. ..	114		5.3		350		9.8	
Gizzard .. ..	63		2.9		165		4.6	
Heart .. ..	16		0.7		28		0.8	
Kidneys .. ..	9		0.4		19		0.5	
Liver .. ..	26		1.2		71		2.0	
Lungs .. ..	8		0.4		29		0.8	
*Head and Neck .. ..	205	241	9.5	11.1	221	673	6.2	18.8
Carcase and Feet .. ..	198	205	9.2	9.5	355	221	9.9	6.2
Leg Bones .. ..	29		1.4		75		2.1	
Wing „ .. ..	39		1.8		114		3.2	
Feathers .. ..	11	226	0.5	12.4	48	544	1.3	15.2
Intestines .. ..	139		6.5		500		13.9	
		150		7.0		548		15.2
Total .. ..		2149		99.9		3584		99.9

\* *Head and Neck* after boiling in water :—

Bones .. ..	91	64.5	131	59.8
Meat .. ..	50	35.5	88	40.2
Total .. ..				
	141	100.0	219	100.0

## POULTRY AND GAME.

## PROPORTIONS OF PARTS.

*Two Pigeons.*

	No. 1.		No. 2.	No. 1.	No. 2.	Mean.
	Gm.		Gm.	Per cent.	Per cent.	Per cent.
<i>Muscle—</i>						
Back ..	3		3	0.8	1.0	0.9
Breast ..	84		72	22.0	23.4	22.7
Leg ..	23		20	6.0	6.5	6.3
Wing ..	30		23	7.9	7.5	7.7
Skin ..	25		22	6.5	7.1	6.8
		165		43.2		44.4
Brain ..	2		1	0.5	0.3	0.4
Gizzard ..	14		12	3.7	3.9	3.8
Heart ..	6		4	1.6	1.3	1.4
Kidneys ..	4		2	1.0	0.6	0.8
Liver ..	14		10	3.6	3.2	3.4
Lungs ..	6		5	1.6	1.6	1.6
		46		12.0		11.4
Head and Neck	23		18	6.0	5.8	5.9
		23		18		
Carcase ..	29		25	7.6	8.1	7.9
Wing Bones ..	6		5	1.6	1.6	1.6
Leg Bones ..	15		11	3.9	3.7	3.8
		50		19.1		19.2
Feathers ..	35		30	9.2	9.7	9.4
Feet ..	8		7	2.1	2.3	2.2
Intestines ..	55		38	14.4	12.4	13.4
		98		25.7		25.0
Total ..		382		100.0		100.0

## POULTRY AND GAME.

## PROPORTIONS OF PARTS.

	<i>Grouse.</i>				<i>Wild Duck.</i>			
	Gm.		Per cent.		Gm.		Per cent.	
<i>Muscle—</i>								
Back .. ..	10		2.3		7		1.0	
Breast .. ..	121		27.9		168		23.6	
Leg .. ..	25		5.8		39		5.5	
Wing .. ..	15		3.5		46		6.4	
Skin .. ..	32		7.3		72		10.1	
		203		46.8		332		46.6
Brain .. ..	—		—		4		0.6	
Gizzard .. ..	16		3.7		45		6.3	
Heart .. ..	7		1.6		9		1.3	
Kidneys .. ..	2		0.5		9		1.3	
Liver .. ..	11		2.5		17		2.4	
Lungs .. ..	3		0.7		11		1.5	
		39		9.0		95		13.4
Head and Neck	—		—		43		6.0	
Leg Bones ..					8	43	1.1	6.0
Wing Bones ..					15		2.1	
Carcase ..	77		17.7		68		9.5	
		77		17.7		91		12.7
Intestines .. ..	115		26.5		136		19.1	
Feathers .. ..	—		—		16		2.2	
		115		26.5		152		21.3
Total .. ..		434		100.0		713		100.0



## POULTRY AND GAME.

## PROPORTIONS OF PARTS.

	<i>Partridge.</i>				<i>Pheasant.</i>			
	Gm.		Per cent.		Gm.		Per cent.	
<i>Muscle—</i>								
Back .. ..	11.0		3.1		32		3.6	
Breast .. ..	97.0		27.2		247		27.7	
Leg .. ..	42.0		11.8		144		16.2	
Wing .. ..	9.5		2.7		53		5.9	
Skin .. ..	21.0		5.9		65		7.3	
		180.5		50.7		541		60.7
Brain .. ..	—		—		4		0.4	
Fat .. ..	—		—		12		1.3	
Gizzard .. ..	12.5		3.5		18		2.0	
Heart .. ..	2.5		0.7		5		0.6	
Kidneys .. ..	—		—		5		0.6	
Liver .. ..	8.5		2.5		17		1.9	
Lungs .. ..	4.0		1.1		6		0.7	
		27.5		7.8		67		7.5
Head and Neck } .. ..	60.0		16.8		47		5.3	
Carcase .. ..						47		5.3
Leg Bones .. ..	12.0		3.3		37		4.2	
Wing Bones .. ..	9.0		2.5		22		2.5	
		81.0		22.6		87		9.8
Feathers .. ..	35.5		9.9		18		2.0	
Feet .. ..	—		—		36		4.0	
Intestines .. ..	32.5		9.1		95		10.7	
		68.0		19.0		149		16.7
Total .. ..		357.0		100.1		891		100.0

*Head and Neck after boiling in water :—*

Meat .. ..	—	—	19	43.2
Bones .. ..	—	—	25	56.8
			44	100.0

## POULTRY AND GAME.

## PROPORTIONS OF PARTS.

	<i>Hare (Scotch).</i>				<i>Rabbit (Frozen).</i>			
	Gm.		Per cent.		Gm.		Per cent.	
<i>Muscle—</i>								
Back .. ..	283		12.1		98		7.3	
Flank .. ..	44		1.9		217		16.2	
Foreleg and Shoul- der .. ..	142		6.1		230		17.2	
Hindleg .. ..	424		18.2		102		7.6	
		893		38.3		647		48.3
Brain .. ..	12		0.5		7		0.5	
Heart .. ..	27		1.2		4		0.3	
Kidneys .. ..	14		0.6		9		0.7	
Liver .. ..	60		2.6		28		2.1	
Lungs .. ..	38		1.6		12		0.9	
Suet .. ..	4		0.2		13		1.0	
		155		6.7		73		5.5
Bones, Foreleg ..	30		1.3					
„ Hindleg .. ..	61		2.6					
Carcase, Head and Neck .. ..	285		12.2		270		20.2	
		376		16.1		270		20.2
Intestines .. ..	535		23.0		—		—	
Skin .. ..	264		11.3		262		19.6	
Water .. ..	107		4.6		85		6.4	
		906		38.9		357		26.0
Total .. ..		2330		100.0		1337		100.0

POULTRY AND GAME.  
FROZEN CHICKEN.  
ANALYTICAL DATA.

95

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate by Diff.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back	73.0	1.3	0.2	23.3	—	2.0	99.8	114.1	32.4	517.6
Breast	74.0	1.2	0.2	24.6	—	0.2	100.2	102.7	29.1	465.8
Leg	72.2	1.2	0.2	22.9	—	2.5	99.0	117.1	33.2	531.2
Wing	72.5	1.3	0.3	23.4	—	1.0	98.5	105.2	29.9	479.2
Skin	56.6	1.1	—	30.8	—	13.6	102.1	252.8	71.7	1,146.7
Brain*	83.8	1.4	—	9.1	—	5.1	99.4	84.7	24.0	384.2
Comb	54.7	2.1	—	30.8	—	3.2	90.8	156.0	44.2	707.6
Gizzard	69.7	1.3	—	21.5	—	6.1	98.6	144.9	41.1	657.3
Heart	67.1	1.2	—	20.3	2.9	8.5	100.0	174.2	49.4	790.2
Kidneys	73.9	1.4	—	17.6	—	5.1	98.0	119.6	33.9	542.5
Liver	69.9	1.6	—	21.8	2.9	3.8	100.0	136.6	38.7	619.6
Lungs	79.3	1.4	—	16.7	—	2.0	99.4	87.1	24.7	395.1
Carcass, head, neck, bones, extract	—	—	—	1.9	—	2.5	to 100	31.0	8.8	140.6

\* From another bird (3.5 gm. in weight).

**POULTRY AND GAME.**  
**FROZEN CHICKEN.**

ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back	2.6	1.9	0.03	0.01	0.61	—	0.05			
Breast	11.9	8.8	0.14	0.02	2.93	—	0.02			
Leg	16.5	11.9	0.20	0.03	3.78	—	0.41			
Wing	3.9	2.8	0.05	0.01	0.91	—	0.04			
Skin...	6.1	3.7	0.07	—	1.88	—	0.83			
All muscle ...	41.0	29.1	0.49	0.07	10.11	—	1.35	54.0	15.3	244.9
<i>Comb</i>										
Gizzard	0.7	0.4	0.01	—	0.22	—	0.02			
Heart	1.8	1.3	0.02	—	0.39	—	0.11			
Kidneys	1.0	0.7	0.01	—	0.20	0.03	0.09			
Liver	0.2	0.2	0.00	—	0.04	—	0.01			
Lungs	1.6	1.1	0.03	—	0.35	0.05	0.06			
	1.1	0.9	0.01	—	0.18	—	0.02			
All offal ...	6.4	4.6	0.08	—	1.38	0.08	0.31	8.9	2.5	40.4
Carcass, &c.	52.8	—	—	—	1.00	—	1.32	16.4	4.7	74.4
Whole bird...	100.2	33.7	0.57	0.07	12.49	0.08	2.98	79.3	22.5	359.7

POULTRY AND GAME.  
DUCK.

## ANALYTICAL DATA.

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate by Diff.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back ...	61.8	1.1	0.1	20.3	—	16.0	99.3	232.0	65.8	1,052.3
Breast ...	71.3	1.3	0.1	22.3	—	4.6	99.6	134.2	38.0	608.7
Leg ...	67.1	1.1	0.1	20.1	—	11.4	99.8	188.4	53.4	854.6
Wing ...	66.6	1.1	0.1	21.2	—	10.5	99.5	184.6	52.3	837.3
Skin...	9.8	0.2	—	4.5	—	84.7	99.2	806.2	228.6	3,656.9
Brain ...	79.6	1.2	—	12.1	—	6.8	99.7	112.9	32.0	512.1
Fat ...	6.1	0.1	—	1.5	—	93.6	101.3	876.6	248.5	3,976.3
Gizzard ...	73.3	1.1	0.2	21.3	—	3.7	99.6	121.7	34.5	552.0
Heart ...	63.7	0.9	0.1	15.0	0.7	19.6	100.0	246.7	69.9	1,119.0
Kidneys ...	61.2	1.2	0.1	16.7	—	20.8	100.0	261.9	74.2	1,188.0
Liver ...	68.6	1.7	0.1	21.6	3.1	4.9	100.0	146.8	41.6	665.9
Lungs ...	67.0	1.6	0.1	25.9	—	4.5	99.1	148.0	42.0	671.3
<i>After boiling—</i>										
Head and neck: meat...	61.3	0.8	—	28.4	—	9.8	100.3	207.6	30.5	488.1
" " extract	—	—	—	0.6	—	0.5	to 100	7.1	2.0	32.2
Carcass and bones: extract	—	—	—	2.0	—	12.0	to 100	119.8	34.0	543.4

POULTRY AND GAME.  
DUCK.

ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

—	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back	1.1	0.7	0.01	0.00	0.22	—	0.18			
Breast	13.0	9.3	0.17	0.01	2.89	—	0.60			
Leg	8.1	5.4	0.09	0.01	1.63	—	0.92			
Wing	5.0	3.3	0.06	0.01	1.06	—	0.53			
Skin...	32.7	3.2	0.06	—	1.47	—	27.7			
All muscle	59.9	21.9	0.39	0.03	7.27	—	29.93	308.2	87.4	1,398.0
Brain	0.2	0.2	0.00	—	0.02	—	0.01			
Fat ...	5.3	0.3	0.00	—	0.08	—	4.96			
Gizzard	2.9	2.1	0.03	0.01	0.62	—	0.11			
Heart	0.7	0.5	0.01	0.00	0.11	0.01	0.14			
Kidneys	0.4	0.2	0.01	0.00	0.07	—	0.08			
Liver	1.2	0.8	0.02	0.00	0.26	0.04	0.06			
Lungs	0.4	0.3	0.01	0.00	0.10	—	0.02			
All offal	11.1	4.4	0.08	0.01	1.26	0.05	5.38	55.4	15.7	251.3

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*Head and neck : meat and extract ... ..	9.5	—	—	—	1.00	—	0.36	7.5	2.1	34.0
Carcass and bones : extract ...	12.4	—	—	—	0.25	—	1.49	14.9	4.2	67.6
Waste ... ..	7.0	—	—	—	—	—	—	—	—	—
Whole bird ... ..	99.9	—	—	—	9.78	0.05	37.16	386.0	109.4	1,750.9
<hr/>										
*Head and neck—										
Meat ... ..	35.5	21.8	0.28	—	10.1	—	3.48			
Extract ... ..	64.5	—	—	—	0.4	—	0.32			
	100.0	21.8	0.28	—	10.5	—	3.80			
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POULTRY AND GAME  
GOOSE.  
ANALYTICAL DATA.

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate by Diff.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back ...	67.1	1.1	0.2	21.0	—	9.8	99.2	177.2	50.2	803.8
Breast ...	69.3	1.1	0.2	22.7	—	5.4	98.7	143.3	40.6	650.0
Leg ...	66.3	1.0	0.1	20.9	—	10.3	98.6	181.5	51.5	823.3
Wing ...	69.6	1.1	0.1	24.1	—	5.1	100.0	146.2	41.4	663.2
Skin... ..	17.7	0.4	0.0	8.8	—	72.4	99.3	709.4	201.1	3,217.8
Brain ...	81.1	1.2	—	10.9	—	5.6	98.8	96.8	27.4	439.1
Fat ...	5.2	0.1	—	0.9	—	94.6	100.7	883.5	250.5	4,007.6
Gizzard ...	72.1	0.9	0.3	23.2	—	4.8	101.3	139.8	39.6	634.1
Heart ...	62.6	1.0	0.2	19.9	4.2	12.1	100.0	211.3	59.9	958.5
Kidneys ...	61.6	1.2	0.3	17.1	—	19.9	100.1	255.3	72.4	1,158.0
Liver ...	71.2	1.1	0.2	16.4	7.0	4.1	100.0	134.1	38.0	608.3
Lungs ...	75.0	1.2	0.1	19.1	—	2.4	97.8	100.6	28.5	456.3
<i>After boiling—</i>										
Head and neck: meat ...	67.4	0.7	—	21.7	—	8.1	97.9	164.3	46.6	745.3
" " extract	—	—	—	1.4	—	0.1	to 100	6.7	1.9	30.4
Carcass and bones: extract	—	—	—	2.8	—	3.1	to 100	40.3	11.4	182.8



## POULTRY AND GAME.

## GOOSE.

## ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back	1.3	0.9	0.01	0.00	0.27	—	0.13			
Breast	13.1	9.1	0.14	0.03	2.97	—	0.71			
Leg	10.4	6.9	0.10	0.01	2.17	—	1.07			
Wing	6.6	4.6	0.07	0.01	1.59	—	0.34			
Skin...	13.1	2.3	0.05	0.00	1.15	—	9.48			
All muscle	44.5	23.8	0.37	0.05	8.15	—	11.73	142.5	40.4	646.4
Brain	0.3	0.2	0.00	—	0.03	—	0.02			
Fat ...	9.8	0.5	0.01	—	0.09	—	9.27			
Gizzard	4.6	3.3	0.04	0.01	1.07	—	0.22			
Heart	0.8	0.5	0.00	0.00	0.16	0.03	0.10			
Kidneys	0.5	0.3	0.01	0.00	0.09	—	0.10			
Liver	2.0	1.4	0.02	0.00	0.33	0.14	0.08			
Lungs	0.8	0.6	0.01	0.00	0.15	—	0.02			
All offal	18.8	6.8	0.11	0.01	1.92	0.17	9.81	99.8	28.3	452.7.

## POULTRY AND GAME.

## GOOSE.

ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS—continued.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
*Head and neck: meat and ex- tract ... ..	6.2	—	—	—	0.59	—	0.21	4.4	1.3	20.0
Carcass and bones: extract ...	13.1	—	—	—	0.37	—	0.41	5.3	1.5	24.0
Waste ... ..	17.3	—	—	—	—	—	—	—	—	—
Whole bird ... ..	99.9	—	—	—	11.03	0.17	22.16	252.0	71.5	1,143.1
*Head and neck— Meat ... ..	40.2	27.1	0.28	—	8.7	—	3.26			
Extract ... ..	59.8	—	—	—	0.8	—	0.06			
	—	—	—	—	9.5	—	3.32			

## POULTRY AND GAME.

## TWO PIGEONS.

## ANALYTICAL DATA.

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate by Diff.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back	62.3	1.5	0.1	30.9	—	5.7	100.5	179.7	50.9	815.1
Breast	71.5	1.4	0.1	22.1	—	3.6	98.7	124.1	35.2	562.9
Leg	69.2	1.3	0.1	22.1	—	6.6	99.3	152.0	43.1	689.5
Wing	67.6	1.4	0.1	25.4	—	5.8	100.3	158.1	44.8	717.1
Skin...	45.9	0.9	0.1	18.7	—	34.6	100.2	398.5	106.7	1,707.6
Brain	77.3	1.4	—	13.2	—	7.9	99.8	127.6	36.2	578.8
Gizzard	71.6	1.1	0.2	20.4	—	6.8	100.1	146.9	41.6	666.3
Heart	73.8	1.1	0.3	18.3	0.6	5.9	100.0	132.4	37.5	600.6
Kidneys	75.8	1.3	—	18.0	—	3.3	98.4	104.5	29.6	474.0
Liver	73.9	1.5	0.4	19.5	2.3	2.4	100.0	111.7	31.7	506.7
Lungs	75.5	1.1	—	19.6	—	2.0	98.2	99.0	28.1	449.1
Head and neck: carcase and bones extract ...	—	—	—	2.2	—	2.8	to 100	35.1	10.0	159.2

## POULTRY AND GAME.

## TWO PIGEONS.

ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back ...	0.9	0.6	0.01	—	0.28	—	0.05			
Breast ...	22.7	16.2	0.32	0.02	5.02	—	0.82			
Leg ...	6.3	4.4	0.08	0.01	1.39	—	0.42			
Wing ...	7.7	5.2	0.11	0.01	1.96	—	0.45			
Skin... ..	6.8	3.1	0.06	0.01	1.27	—	2.35			
All muscle ...	44.4	29.5	0.58	0.05	9.92	—	4.09	78.7	22.3	357.0
<i>Brain</i>										
Gizzard ...	0.4	0.3	0.01	—	0.05	—	0.03			
Heart ...	3.8	2.7	0.04	0.01	0.77	—	0.26			
Kidneys ...	1.4	1.0	0.01	0.00	0.26	0.01	0.08			
Liver ...	0.8	0.6	0.01	—	0.14	—	0.03			
Lungs ...	3.4	2.5	0.05	0.01	0.66	0.08	0.08			
...	1.6	1.2	0.02	—	0.31	—	0.03			
All offal ...	11.4	8.3	0.14	0.02	2.19	0.09	0.51	14.1	4.0	64.0
Head, neck and bones : extract ...	19.2	—	—	—	0.42	—	0.54	6.7	1.9	30.4
Waste ...	25.0	—	—	—	—	—	—	—	—	—
Whole bird...	100.0	—	—	—	12.53	0.09	5.14	99.5	28.2	451.4

POULTRY AND GAME.  
TURKEY.

## ANALYTICAL DATA.

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate by Diff.	Fat.	Total.	Energy Value. Calories per—			
								100 gm.	1 oz.	1 lb.	
<i>Muscle—</i>											
Back	69.1	1.1	0.2	21.6	—	6.5	98.5	149.0	42.4		675.9
Breast	71.8	1.1	0.1	23.2	—	2.1	98.3	114.7	32.5		520.3
Leg	71.3	1.0	0.1	22.4	—	7.0	101.8	156.9	44.5		711.7
Wing	66.5	1.0	0.2	25.6	—	7.4	100.7	173.8	49.3		788.4
Skin...	49.9	0.7	0.1	19.0	—	28.4	98.1	342.0	97.0		1,551.3
<i>Viscera—</i>											
Gizzard	70.5	1.0	0.2	20.4	—	6.7	98.8	145.9	41.3		661.8
Heart	71.0	1.2	0.2	15.7	—	12.2	100.3	177.8	50.4		806.5
Kidneys	74.5	1.0	0.2	18.6	—	5.3	99.6	125.6	35.6		569.7
Liver	72.2	1.5	0.2	21.1	0.7	4.3	100.0	129.4	36.7		587.0
Lungs	72.4	1.4	0.3	22.3	—	2.7	99.1	116.5	33.0		528.4
<i>After boiling—</i>											
Head and neck: meat...	71.2	0.5	—	20.8	—	7.1	99.6	151.3	42.9		686.3
"	—	—	—	3.3	—	0.1	to 100	14.5	4.1		65.8
Carcase and bones: extract	—	—	—	5.5	—	3.8	to 100	57.9	16.4		262.6

POULTRY AND GAME.  
TURKEY.

ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back ...	2.5	1.7	0.03	0.01	0.54	—	0.16			
Breast ...	22.3	16.0	0.24	0.02	5.17	—	0.47			
Leg ...	15.6	11.1	0.16	0.02	3.49	—	1.09			
Wing ...	5.0	3.3	0.05	0.01	1.28	—	0.37			
Skin... ..	6.8	3.4	0.05	0.01	1.29	—	1.93			
All muscle ...	52.2	35.5	0.53	0.07	11.77	—	4.02	85.6	24.3	388.3
Gizzard ...	4.1	2.9	0.04	0.01	0.84	—	0.28			
Heart ...	0.7	0.5	0.01	0.00	0.11	—	0.08			
Kidneys ...	0.5	0.4	0.01	0.0	0.09	—	0.03			
Liver ...	1.9	1.4	0.03	0.00	0.40	0.01	0.08			
Lungs ...	0.5	0.4	0.01	0.00	0.11	—	0.01			
All offal ...	7.7	5.6	0.10	0.01	1.55	0.01	0.48	10.9	3.1	49.4

*Head and neck: meat and extract ... ..	7.3	—	—	—	—	1.13	—	0.36	8.0	2.3	36.3
Carcass and bones: extract ...	21.3	—	—	—	—	1.17	—	0.81	12.3	3.5	55.8
Waste ... ..	11.5	—	—	—	—	—	—	—	—	—	—
Whole bird... ..	100.0	—	—	—	—	15.62	0.01	5.67	116.8	33.2	529.8
<hr/>											
*Head and neck—											
Meat ... ..	69.7	49.6	0.4	—	—	14.5	—	4.95			
Extract ... ..	30.3	—	—	—	—	1.0	—	0.03			
	100.0					15.5	—	4.98			

## POULTRY AND GAME.

## GROUSE.

## ANALYTICAL DATA.

—		Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate by Diff.	Fat.	Total.	Energy Value. Calories per—		
									100 gm.	1 oz.	1 lb.
<i>Muscle—</i>											
Back	...	69.9	1.3	—	25.3	—	1.4	97.9	116.8	33.1	529.8
Breast	...	72.1	1.2	0.1	24.0	—	0.9	98.3	106.8	30.3	484.4
Leg	...	69.9	1.5	0.1	24.4	—	3.0	98.9	127.9	36.3	580.1
Wing	...	69.9	1.2	0.1	26.2	—	2.9	100.2	134.4	38.1	609.6
Skin	...	73.6	0.6	0.2	17.7	—	6.4	98.5	132.1	37.4	599.2
Gizzard	...	74.6	1.1	0.1	21.7	—	0.7	98.2	95.5	27.1	433.2
Heart	...	70.7	1.1	—	21.4	0.6	6.2	100.0	147.9	41.9	670.9
Kidneys	...	73.4	0.8	—	16.3	—	3.7	94.2	101.2	28.7	459.0
Liver	...	73.6	1.4	—	19.5	2.9	2.6	100.0	116.0	32.9	526.2
Lungs	...	73.2	0.7	—	19.6	—	3.0	96.5	108.3	30.7	491.3
Carcass and bones : extract		—	—	—	0.7	—	0.1	to 100	3.8	1.1	17.2



## POULTRY AND GAME.

## GROUSE.

ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—	
								100 gm.	1 lb.
<i>Muscle—</i>									
Back ...	2.3	1.6	0.03	—	0.58	—	0.03		
Breast ...	27.9	20.1	0.33	0.03	6.69	—	0.25		
Leg ...	5.8	4.0	0.09	0.01	1.42	—	0.17		
Wing ...	3.5	2.4	0.04	0.01	0.94	—	0.10		
Skin... ..	7.3	5.4	0.04	0.01	1.29	—	0.47		
All muscle ...	46.8	33.5	0.53	0.06	10.92	—	1.02	54.3	246.3
Gizzard									
Heart ...	3.7	2.8	0.04		0.80	—	0.03		
Kidney ...	1.6	1.1	0.02		0.34	0.01	0.10		
Liver ...	0.5	0.4	0.00		0.08	—	0.02		
Lungs ...	2.5	1.8	0.04		0.49	0.07	0.06		
	0.7	0.5	0.01		0.14	—	0.02		
All offal ...	9.0	6.6	0.11		1.85	0.08	0.23	10.1	45.8
Bones ...									
	17.7	—	—	—	0.12	—	0.02	0.7	3.2
Intestines ...	26.5	—	—	—	—	—	—	—	—
Whole bird...	100.0	40.1	0.64	0.06	12.89	0.08	1.27	65.1	295.3

## POULTRY AND GAME.

## PARTRIDGE.

## ANALYTICAL DATA.

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate by Diff.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back	72.0	1.1	0.2	23.0	—	4.3	100.6	134.3	38.1	609.2
Breast	72.2	1.3	0.1	24.2	—	1.6	99.4	114.1	32.4	517.6
Leg	69.3	1.4	0.1	24.4	—	5.3	100.5	149.3	42.3	677.2
Wing	69.5	1.7	0.2	25.8	—	3.3	100.5	136.5	38.7	619.2
Skin...	50.9	0.9	0.1	17.8	—	30.9	100.6	360.4	102.2	1,634.8
Gizzard	75.0	0.6	0.1	21.9	—	2.8	100.4	115.8	32.8	525.3
Heart	69.5	0.8	—	19.0	2.0	8.7	100.0	167.0	47.3	757.5
Kidneys	—	—	—	—	—	—	—	—	—	—
Liver	70.2	1.5	—	21.9	2.6	3.8	100.0	135.8	38.5	616.0
Lungs	73.9	1.1	—	21.0	—	2.1	98.1	105.6	29.9	479.0
Carcass and bones	—	—	—	0.8	—	0.2	to 100	5.1	1.4	23.1

# POULTRY AND GAME. PARTRIDGE.

ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back ...	3.1	2.2	0.03	0.01	0.71	—	0.13			
Breast ...	27.2	19.6	0.35	0.03	6.58	—	0.43			
Leg ...	11.8	8.2	0.16	0.01	2.88	—	0.62			
Wing ...	2.7	1.9	0.05	0.01	0.69	—	0.09			
Skin... ..	5.9	3.0	0.05	0.01	1.05	—	1.82			
All muscle ...	50.7	34.9	0.64	0.07	11.91	—	3.09	77.6	22.0	352.0
Gizzard										
Heart ...	3.5	2.6	0.02	0.00	0.77	—	0.10			
Kidneys ...	0.7	0.5	0.01	—	0.13	0.01	0.06			
Liver ...	—	—	—	—	—	—	—			
Lungs ...	2.5	1.8	0.04	—	0.55	0.07	0.09			
...	1.1	0.8	0.01	—	0.23	—	0.02			
All offal ...	7.8	5.7	0.07	0.00	1.68	0.08	0.27	9.7	2.8	44.0
Bones and carcase										
...	22.6	—	—	—	0.18	—	0.04	1.1	0.3	5.0
Intestines and feathers										
...	19.0	—	—	—	—	—	—	—	—	—
Whole bird...	100.1	40.6	0.72	0.07	13.77	0.08	3.40	88.4	25.1	401.0

## POULTRY AND GAME.

## PHEASANT.

## ANALYTICAL DATA.

112

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate by Diff.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back ...	57.8	1.1	0.2	22.9	—	20.8	102.8	287.3	81.5	1,303.2
Breast ...	69.9	1.3	0.1	25.1	—	3.3	99.7	133.6	37.9	606.0
Leg ...	66.3	1.4	0.1	20.8	—	10.6	99.2	183.9	52.1	834.2
Wing ...	68.8	1.2	0.2	24.4	—	4.6	99.2	142.8	40.5	647.7
Skin ...	31.1	0.7	—	16.3	—	50.7	98.8	538.3	152.6	2,441.7
Brain ...	78.2	1.3	—	12.7	—	7.0	99.2	117.2	33.2	531.6
Fat ...	11.6	0.2	—	2.1	—	87.3	101.2	820.5	232.6	3,721.8
Gizzard ...	69.8	1.0	0.1	23.5	—	5.2	99.6	144.7	41.0	656.4
Heart ...	65.2	0.9	—	19.5	1.3	13.1	98.7	207.1	58.7	939.4
Kidneys ...	74.4	1.2	0.2	19.8	—	4.3	99.9	121.2	34.4	549.8
Liver ...	73.1	1.2	0.1	19.4	3.5	2.7	100.0	119.0	33.7	539.8
Lungs ...	67.7	1.2	0.2	28.5	—	1.5	99.1	130.8	37.1	593.3
<i>After boiling—</i>										
Head and neck, meat ...	67.6	1.0	—	26.8	—	4.8	100.2	154.5	43.8	700.8
"    extract	—	—	—	1.8	—	1.3	to 100	19.5	5.5	88.4
Carcass and bones : extract	—	—	—	4.0	—	7.2	to 100	83.4	23.6	378.3

POULTRY AND GAME.  
PHEASANT.

ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back	3.6	2.1	0.04	0.01	0.82	—	0.75			
Breast	27.7	19.4	0.36	0.03	6.95	—	0.91			
Leg	16.2	10.7	0.23	0.02	3.37	—	1.72			
Wing	5.9	4.1	0.07	0.01	1.44	—	0.27			
Skin...	7.3	2.3	0.05	—	1.19	—	3.70			
All muscle	60.7	38.6	0.75	0.07	13.77	—	7.35	124.8	35.4	566.1
Brain	0.4	0.3	0.00	—	0.05	—	0.03			
Fat ...	1.3	0.2	0.00	—	0.03	—	1.13			
Gizzard	2.0	1.4	0.02	0.00	0.47	—	0.10			
Heart	0.6	0.4	0.00	—	0.12	0.01	0.08			
Kidneys	0.6	0.4	0.01	0.00	0.12	—	0.03			
Liver	1.9	1.4	0.02	0.00	0.37	0.07	0.05			
Lungs	0.7	0.5	0.01	0.00	0.20	—	0.01			
All offal	7.5	4.6	0.06	0.00	1.36	0.08	1.43	19.2	5.4	87.1

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## POULTRY AND GAME.

## PHEASANT.

ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS—continued.

—	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
*Head and neck: meat and ex- tract ... ..	5.3	—	—	—	0.67	—	0.15	4.1	1.2	18.6
Carcass and bones extract ...	9.8	—	—	—	0.39	—	0.71	8.2	2.3	37.2
Waste ... ..	16.7	—	—	—	—	—	—	—	—	—
Whole bird ... ..	100.0	—	—	—	16.19	0.08	9.64	156.3	44.3	709.0
*Head and neck—										
Meat ... ..	43.2	29.2	0.43	—	11.6	—	2.07			
Extract ... ..	56.8	—	—	—	1.0	—	0.74			
	—	—	—	—	12.6	—	2.81			

POULTRY AND GAME.  
WILD DUCK.  
ANALYTICAL DATA.

115

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate by Diff.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back	67.7	1.1	0.0	25.3	—	6.4	100.5	163.3	46.3	740.7
Breast	70.4	1.3	0.1	23.6	—	3.7	99.1	131.2	37.2	595.1
Leg	67.7	1.1	0.2	21.2	—	9.4	99.6	174.3	49.4	790.6
Wing	65.1	1.4	0.2	25.5	—	6.6	98.8	165.9	47.0	752.5
Skin...	21.0	0.5	—	11.4	—	67.7	100.6	676.4	191.8	3,068.2
Brain	79.2	1.4	—	12.3	—	7.5	100.4	120.2	34.1	545.2
Gizzard	74.6	1.0	0.2	22.5	—	1.6	99.9	107.1	30.4	485.8
Heart	71.6	1.2	0.2	19.1	0.9	7.0	100.0	147.1	41.7	667.2
Kidneys	73.5	1.2	0.1	21.2	—	1.6	97.6	101.8	28.9	461.8
Liver	70.7	1.4	0.1	20.6	4.4	2.8	100.0	128.5	31.3	582.9
Lungs	74.1	1.3	0.2	22.6	—	1.4	99.6	105.7	30.0	479.5
<i>After boiling—</i>										
Head and neck, meat ...	65.0	0.8	—	26.1	—	6.3	98.2	165.6	46.9	751.2
" " extract	—	—	—	3.1	—	0.4	to 100	16.4	4.6	74.4
Carcass and bones extract	—	—	—	3.6	—	3.0	to 100	42.7	12.1	193.7

POULTRY AND GAME.  
WILD DUCK.  
ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- by Diff.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back	1.0	0.7	0.11	0.00	0.25	—	0.06			
Breast	23.6	16.6	0.31	0.02	5.57	—	0.87			
Leg	5.5	3.7	0.06	0.01	1.17	—	0.52			
Wing	6.4	4.2	0.09	0.01	1.63	—	0.42			
Skin...	10.1	2.1	0.05	—	1.15	—	6.84			
All muscle ...	46.6	27.3	0.62	0.04	9.77	—	8.71	121.1	34.3	549.3
Brain	0.6	0.5	0.01	—	0.07	—	0.04			
Gizzard	6.3	4.7	0.06	0.01	1.42	—	0.10			
Heart	1.3	0.9	0.02	0.00	0.25	0.01	0.09			
Kidneys	1.3	1.0	0.02	0.00	0.28	—	0.02			
Liver	2.4	1.7	0.03	0.00	0.49	0.11	0.07			
Lungs	1.5	1.1	0.02	0.00	0.34	—	0.02			
All offal ...	13.4	9.9	0.16	0.01	2.85	0.12	0.34	15.3	4.3	69.4





## POULTRY AND GAME.

## HARE (SCOTCH).

## ANALYTICAL DATA.

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate by Diff.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back ...	73.7	1.1	0.2	21.7	—	1.9	98.6	106.6	30.2	483.5
Flank ...	71.7	1.1	0.2	21.2	—	3.6	97.8	120.4	34.1	546.1
Fore leg ...	72.4	1.1	0.1	23.4	—	2.4	99.4	118.3	33.5	536.6
Hind leg...	74.9	1.1	0.2	21.7	—	1.6	99.5	103.9	29.5	471.3
Brain ...	77.5	1.4	—	11.7	—	9.2	99.8	133.5	37.9	605.6
Heart ...	76.3	1.0	0.2	18.9	1.3	2.3	100.0	104.2	29.5	472.7
Kidneys ...	74.2	1.3	0.2	18.4	—	3.7	97.8	109.9	31.2	498.5
Liver ...	74.8	0.9	0.1	17.9	3.8	2.5	100.0	112.2	31.8	508.9
Lungs ...	76.7	1.0	0.2	19.7	—	1.3	98.9	92.9	26.3	421.4
Suet...	28.4	0.4	—	5.4	—	63.0	97.2	608.0	172.4	2,757.9
<i>After boiling—</i>										
Head, neck, carcase, bones—										
Meat ...	71.0	1.0	—	20.5	—	6.2	98.7	141.7	40.2	642.7
Extract ...	—	—	—	1.6	—	0.00	to 100	6.6	1.9	29.9

## POULTRY AND GAME.

## HARE (SCOTCH).

## ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per---		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back ...	12.1	8.9	0.13	0.02	2.63	—	0.23			
Flank ...	1.9	1.4	0.02	0.00	0.40	—	0.07			
Fore leg ...	6.1	4.4	0.07	0.01	1.43	—	0.15			
Hind leg ...	18.2	13.6	0.20	0.04	3.95	—	0.29			
All muscle ...	38.3	28.3	0.42	0.07	8.41	—	0.74	41.4	11.7	187.8
Brain ...	0.5	0.4	0.01	—	0.06	—	0.05			
Heart ...	1.2	0.9	0.01	0.00	0.23	0.02	0.03			
Kidneys ...	0.6	0.4	0.01	0.00	0.11	—	0.02			
Liver ...	2.6	1.9	0.02	0.00	0.46	0.10	0.06			
Lungs ...	1.6	1.2	0.02	0.00	0.31	—	0.02			
Suet ...	0.2	0.1	0.00	0.00	0.01	—	0.13			
All offal ...	6.7	4.9	0.07	0.00	1.18	0.12	0.31	8.2	2.3	37.2
*Carcase, head, neck, &c.	16.1	—	—	—	1.39	—	0.27	8.2	2.3	37.2
Waste ...	38.8	—	—	—	—	—	—	—	—	—
Whole hare ...	99.9	—	—	—	10.98	0.12	1.32	57.8	16.3	262.2
*Carcase, &c.—										
Meat ...	36.6	26.0	0.37	—	7.5	—	2.27			
Bones, &c. ...	63.4	—	—	—	1.0	—	0.00			
	100.0	—	—	—	8.5	—	2.27			

POULTRY AND GAME.  
RABBIT (FROZEN).  
ANALYTICAL DATA.

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate by Diff.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Muscle—</i>										
Back ...	75.3	1.1	0.1	22.4	—	1.6	100.5	106.7	30.3	484.0
Flank ...	68.2	0.9	0.3	21.6	—	9.2	100.2	174.2	49.4	790.2
Fore leg and shoulder...	73.2	1.1	0.6	21.7	—	3.8	100.4	124.3	35.2	563.8
Hind leg...	75.2	1.0	0.3	22.7	—	0.5	99.7	97.8	27.7	443.6
Brain ...	71.7	1.2	—	11.5	—	15.4	99.8	190.4	54.0	863.6
Heart*	70.7	1.1	—	21.5	1.9	4.8	100.0	140.6	39.9	637.8
Kidney†	73.9	1.3	0.3	19.5	—	3.0	98.0	107.9	30.6	489.4
Liver†	69.3	1.6	0.3	23.3	2.7	2.8	100.0	132.6	37.6	601.5
Lungs†	68.1	1.2	—	16.5	—	11.5	97.2	174.6	49.5	792.0
Suet...	10.4	0.4	—	3.7	—	81.7	96.2	775.0	219.7	3,515.4
Bone extract ...	—	—	—	4.9	—	5.5	to 100	71.2	20.8	323.0

\* Mean of analyses of hearts of three animals.

† Mean of analyses of organs of four animals.



## VENISON (SPECIAL SECTIONS).

## I.—PROPORTIONS OF PARTS.

		Gm.	Per-centage.			Gm.	Per-centage.
<i>Rib—</i>				<i>Shoulder—</i>			
Bones ...	...	148	17.3	Bone ...	...	170	17.4
Fat ...	...	210	24.5	Fat and skin ...	...	119	12.2
Lean ...	...	375	43.8	Lean ...	...	668	68.2
Skin, hard ...	...	124	14.4	Marrow ...	...	22	2.2
Total ...		857	100.0	Total ...		979	100.0

## POULTRY AND GAME.

## VENISON.

## II.—ANALYTICAL DATA.

	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Total.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Rib—</i>										
Fat ...	5.2	0.2	—	5.4	—	89.4	100.2	853.6	242.0	3,871.9
Lean ...	68.7	1.1	0.1	23.6	—	6.1	99.6	153.5	43.5	696.3
Skin, hard ...	39.0	1.6	0.1	35.8	—	20.7	97.2	339.3	96.2	1,539.1
<i>Shoulder—</i>										
Fat and skin ...	28.5	0.5	—	9.8	—	61.0	99.8	607.5	172.2	2,755.6
Lean ...	69.9	1.2	0.1	22.6	—	4.1	97.9	130.8	37.1	593.3
Marrow ...	5.6	0.5	—	0.9	—	94.3	101.3	880.7	249.7	3,994.9

POULTRY AND GAME.  
VENISON.

III.—ANALYTICAL DATA CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	Per- centage Amount.	Water.	Ash.	Sodium Chloride.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Rib—</i>										
Bone ...	17.3	—	—	—	—	—	—			
Fat ...	24.5	1.3	0.05	—	1.32	—	21.90			
Lean ...	43.8	30.1	0.48	0.04	10.34	—	2.67			
Skin, hard ...	14.4	5.6	0.23	0.01	5.16	—	2.98			
	100.0	37.0	0.76	0.05	16.82	—	27.55	325.2	92.2	1,475.1
<i>Shoulder—</i>										
Bone ...	17.4	—	—	—	—	—	—			
Fat and skin ...	12.2	3.5	0.06	—	1.19	—	7.44			
Lean ...	68.2	47.7	0.82	0.07	15.41	—	2.80			
Marrow ...	2.2	0.1	0.01	—	0.02	—	2.07			
	100.0	51.3	0.89	0.07	16.62	—	12.31	182.6	51.8	828.3



## FISH.

Between fifty and sixty different varieties of fish were obtained on the market during the months of January, February and March, 1919. The custom at the time was to sell the fish without its intestine, only the liver and roes being retained. Only in a few cases has the whole fish, as caught, been purchased. This custom may be to reduce the weight during transit from the coast, as well as to prevent decomposition, as the intestines are generally the first organs to become putrid.

Fish vary considerably according to the time of year they are caught ; *i.e.*, whether it is or is not the breeding season. They also vary according to the state of nutrition. It has not been possible to make allowance for the breeding season nor for the state of nutrition. In most cases only one fish has been purchased for analysis, so that the data are for one specimen, but they are probably in the neighbourhood of the general value.

The fish, as purchased, have been separated into their component parts, and the weights of these have been noted so as to find out the proportion. In general, some 40 to 50 per cent. of fish consists of bone. The component parts have been separately analysed. From these data and the proportions the figures for the whole fish are calculated ; allowance is thus made for the waste. Further, the calculations are made for the fish with and without skin, for sometimes the skin is eaten and sometimes not eaten. Extra calculations can easily be made for the fish without roe, liver, etc. ; these calculations are not included in the following tables.

Fish may be roughly divided into several groups :—

1. Those with a good deal of fat : Herring, mackerel, salmon, sprats.
2. Those with a small amount of fat : Gurnets, mullets, etc.
3. Those with very little fat : Cod, haddock, whiting, hake, etc.
4. Flat fish : Brill, dab, halibut, sole, etc.
5. Fresh-water fish : Eel, perch, trout.
6. Molluscs.
7. Crustaceans.

The various data are grouped together under these headings.

## FISH.

## PROPORTIONS OF THE VARIOUS PARTS.

*Fresh Herrings.*

	Gm.	Per-centage.		Gm.	Per-centage.
<i>3 Yearlings—</i>			<i>Male—</i>		
Flesh ...	174	65.2	Flesh ...	125	59.8
2 soft roes ...	11	4.1	Skin ...	10	4.8
1 hard roe ...	7	2.6	Soft roe ...	32	15.3
Waste—Bone, gut	75	28.1	Waste ...	42	20.1
Total ...	267	100.0	Total ...	209	100.0
<i>Female—</i>					
Flesh ...	118	64.1			
Skin ...	7	3.8			
Hard roe ...	16	8.7			
Waste ...	43	23.4			
Total ...	184	100.0			

*Preserved Herrings.*

	Gm.	Per-centage.		Gm.	Per-centage.
<i>Salted Male—</i>			<i>Bloater, Male—</i>		
Flesh ...	60	54.0	Flesh ...	147	60.0
Skin ...	8	7.3	Skin ...	6	2.4
Soft roe ...	21	18.9	Soft roe ...	45	18.4
Waste ...	22	19.8	Waste ...	47	19.2
Total ...	111	100.0	Total ...	245	100.0
<i>Salted Female—</i>			<i>Bloater, Female—</i>		
Flesh ...	62	48.8	Flesh ...	121	60.5
Skin ...	8	6.3	Skin ...	5	2.5
Hard roe ...	29	22.8	Hard roe ...	35	17.5
Waste ...	28	22.1	Waste ...	39	19.5
Total ...	127	100.0	Total ...	200	100.0
<i>Kippers—</i>					
Flesh ...	140	75.0			
Skin ...	12	6.4			
Waste ...	35	18.6			
Total ...	187	100.0			
<i>Mackerel (2 fish)—</i>			<i>Whitebait (40 fishes = 135 gms.)</i>		
Flesh ...	365	57.7	<i>20 fishes—</i>		
Skin ...	17	2.7	Flesh and skin ...	42	62.7
Waste ...	250	39.6	Waste ...	25	37.3
Total ...	632	100.0	Total ...	67	100.0

## FISH.

PROPORTIONS OF THE VARIOUS PARTS—*continued.*

	Gm.	Per-centage.		Gm.	Per-centage.
<i>Sprats (7 fishes)—</i>			<i>Grey Gurnet—</i>		
Flesh and skin ...	74	74.0	Flesh ...	210	44.0
Waste ...	26	26.0	Skin ...	15	3.1
Total ...	100	100.0	Hard roe ...	43	9.0
			Liver ...	10	2.1
			Waste ...	200	41.8
<i>Smoked Sprats (6 fishes)—</i>			Total ...	478	100.0
Flesh and skin ...	42	79.2			
Waste ...	11	20.8			
Total ...	53	100.0	<i>Red Mullet (2 fishes)—</i>		
			Flesh ...	214	59.4
<i>Smelts (4 fishes)—</i>			Skin ...	20	5.6
Flesh and skin ...	60.0	59.4	Liver ...	6	1.7
1 hard roe ...	1.5	1.5	Waste ...	120	33.3
3 soft roes ...	2.5	2.5	Total ...	360	100.0
Waste ...	37.0	36.6			
Total ...	101.0	100.0	<i>Grey Mullet—</i>		
			Flesh ...	963	72.3
<i>Dog Fish—</i>			Skin ...	90	6.8
Flesh ...	607.5	49.2	Waste ...	278	20.9
Skin ...	80.0	6.5	Total ...	1,331	100.0
Hard roe ...	4.5	0.4			
Liver ...	150.0	12.1	<i>Bass—</i>		
Waste ...	393.0	31.8	Flesh ...	625	53.0
Total ...	1,235.0	100.0	Skin ...	55	4.7
			Soft roe ...	72	6.1
<i>Sturgeon Section—</i>			Liver ...	13	1.1
Flesh ...	203.5	88.1	Waste ...	415	35.1
Skin ...	12.0	5.2	Total ...	1,180	100.0
Soft bone ...	15.5	6.7			
Total ...	231.0	100.0	<i>Bream—</i>		
			Flesh ...	256	43.4
<i>Salmon Section—</i>			Hard roe ...	4	0.7
Flesh ...	164	79.2	Waste ...	330	55.9
Skin ...	8	3.9	Total ...	590	100.0
Waste ...	35	16.9			
Total ...	207	100.0	<i>Haddock (Fresh)—</i>		
			Flesh ...	231	65.3
<i>Red Gurnet—</i>			Waste ...	123	34.7
Flesh ...	232	43.6	Total ...	354	100.0
Skin ...	16	3.0			
Hard roe ...	7	1.3			
Liver ...	16	3.0			
Waste ...	261	49.1			
Total ...	532	100.0			

## FISH.

PROPORTIONS OF THE VARIOUS PARTS—*continued.*

	Gm.	Per-centage.		Gm.	Per-centage.
<i>Codling</i> —			<i>Ling</i> —		
Flesh ... ..	410	54·3	Flesh ... ..	5,159	59·6
Skin ... ..	35	4·7	Skin ... ..	499	5·8
Waste ... ..	310	41·0	Hard roe ... ..	680	7·9
Total ... ..	755	100·0	Waste ... ..	2,312	26·7
			Total ... ..	8,650	100·0
<i>Haddock</i> —					
Hard roes (2) ... ..	98	100·0	<i>Pout Whiting</i> —		
			Flesh ... ..	215·0	50·5
<i>Cod</i> —			Skin ... ..	18·6	4·4
Hard roe ... ..	158	100·0	Soft roe ... ..	3·4	0·8
			Waste ... ..	189·0	44·3
<i>Smoked Haddock</i> —			Total ... ..	426·0	100·0
Flesh ... ..	200	76·3			
Waste ... ..	62	23·7	<i>Conger Eel</i> —		
Total ... ..	262	100·0	Flesh ... ..	930	65·3
			Skin ... ..	103	7·2
<i>Whiting</i> —			Waste ... ..	392	27·5
Flesh and skin ... ..	165	63·6	Total ... ..	1,425	100·0
Waste ... ..	95	36·4			
Total ... ..	260	100·0	<i>Brill</i> —		
<i>Cod Section</i> —			Flesh ... ..	748	58·4
Flesh ... ..	265	83·3	Black skin ... ..	36	2·8
Skin ... ..	14	4·4	White skin ... ..	36	2·8
Waste ... ..	39	12·3	Soft roe ... ..	3	0·2
Total ... ..	318	100·0	Waste ... ..	458	35·8
			Total ... ..	1,281	100·0
<i>Saithe or Coal Fish Section</i> —					
Flesh ... ..	189	88·3	<i>Dab</i> —		
Skin ... ..	9	4·2	Flesh ... ..	349	60·2
Waste ... ..	16	7·5	Black skin ... ..	23	4·0
Total ... ..	214	100·0	White skin ... ..	19	3·3
			Hard roe ... ..	18	3·1
<i>Hake</i> —			Waste ... ..	171	29·4
Flesh ... ..	1,223·5	65·4	Total ... ..	580	100·0
Skin ... ..	34·0	1·8			
Liver ... ..	2·5	0·1	<i>Flounder (2 fishes)</i> —		
Waste ... ..	612·0	32·7	Flesh ... ..	79	46·5
Total ... ..	1,872·0	100·0	Black skin ... ..	9	5·3
			White skin ... ..	7	4·1
			Waste ... ..	75	44·1
			Total ... ..	170	100·0

## FISH.

PROPORTIONS OF THE VARIOUS PARTS—*continued.*

	Gm.	Per-centage.		Gm.	Per-centage.
<i>Halibut</i> —			<i>Sole</i> —		
Flesh ...	2,093	70.2	Flesh ...	280	61.7
Black skin ...	78	1.9	Black skin ...	14	3.1
White skin ...	85	2.0	White skin ...	13	2.9
Waste ...	1,070	25.9	Hard roe ...	26	5.7
Total ...	4,136	100.0	Waste ...	121	26.6
			Total ...	454	100.0
<i>John Dory</i> —			<i>Skate Section</i> —		
Flesh ...	863	42.1	Flesh ...	430	65.1
Skin ...	72	3.5	Skin ...	190	28.8
Hard roe ...	65	3.2	Waste ...	40	6.1
Waste ...	1,050	51.2	Total ...	660	100.0
Total ...	2,050	100.0			
<i>Lemon Sole</i> —			<i>Turbot</i> —		
Flesh ...	319.0	55.6	Flesh ...	1,215	52.3
Black skin ...	31.5	5.5	Black skin ...	90	3.9
White skin ...	27.0	4.7	White skin ...	80	3.4
Hard roe ...	36.2	6.3	Soft roe ...	10	0.4
Waste ...	160.3	27.9	Waste ...	930	40.0
Total ...	574.0	100.0	Total ...	2,325	100.0
<i>Plaice</i> —			<i>Witches</i> —		
Flesh ...	347	34.1	Flesh ...	73.8	62.5
Skin ...	78	19.1	Black skin ...	4.5	3.8
Hard roe ...	195	7.6	White skin ...	4.7	4.0
Waste ...	400	39.2	Liver ...	3.0	2.6
Total ...	1,020	100.0	Waste ...	32.0	27.1
			Total ...	118.0	100.0

## FRESH WATER FISH.

	Gm.	Per-centage.		Gm.	Per-centage.
<i>Eel</i> —			<i>Brook Trout</i> —		
Flesh ...	157	58.8	Flesh ...	149	68.0
Skin ...	48	18.0	Skin ...	16	7.3
Hard roe ...	5	1.8	Waste ...	54	24.7
Waste ...	57	21.4	Total ...	219	100.0
Total ...	267	100.0			
<i>Perch (2 fishes)</i> —					
Flesh ...	162.5	40.6			
Skin ...	42.0	10.5			
Hard roe ...	64.0	16.0			
Liver ...	6.5	1.6			
Waste ...	125.0	31.3			
Total ...	400.0	100.0			

## FISH.

PROPORTIONS OF THE VARIOUS PARTS—*continued.*

## MOLLUSCS.

	Gm.	Per-centage.
<i>Oysters</i> (12)—		
Flesh ...	62	10.6
Liquid ...	65	11.1
Shell, &c. ...	457	78.3
Total ...	584	100.0
<i>Mussels</i> (12)—		
Flesh ...	44	24.4
Liquid ...	40	22.3
Shell, &c. ...	96	53.3
Total ...	180	100.0
<i>Scallops</i> (2)—		
Flesh ...	49.5	13.4
Liver, &c. ...	16.5	4.5
Mantle ...	28.0	7.5
Shell, &c. ...	276.0	74.6
Total ...	370.0	100.0

	Gm.	Per-centage.
<i>Whelks</i> (6)—		
Flesh ...	79.5	42.1
Shell, &c. ...	109.5	57.9
Total ...	189.0	100.0
<i>Cockles, Salted, without Shell</i> —		
26 ...	50	100.0
34 ...	50	100.0
32 (after washing)	50	—
<i>Winkles</i> (24)—		
Flesh ...	30.8	22.3
Shell, &c. ...	107.2	77.7
Total ...	138.0	100.0

## CRUSTACEANS.

	Gm.	Per-centage.
<i>Crab</i> —		
Flesh ...	175	26.2
Liver, &c. ...	96	14.4
Interior waste ...	25	3.7
Shell ...	372	55.7
Total ...	668	100.0
<i>Lobster</i> —		
Flesh ...	160	53.9
Liver, &c. ...	15	5.1
Interior waste ...	7	2.3
Shell ...	115	38.7
Total ...	297	100.0

	Gm.	Per-centage.
<i>Shrimps</i> (41)—		
Flesh ...	25	47.2
Shell ...	28	52.8
Total ...	53	100.0
<i>Prawns</i> (18)—		
Flesh ...	23	46.0
Shell ...	27	54.0
Total ...	50	100.0

FISH.  
ANALYSES OF THE VARIOUS PARTS.  
(A) *Flesh.*

	Water.	Ash.	Protein.	Carbo- hydrate.	Fat.	Total.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Fatty Fish—</i>									
<i>Herring—</i>									
Fresh, Yearling	...	...	...	...	...	...	210.9	59.8	956.6
" Male	...	...	...	...	...	...	177.6	50.3	805.6
" Female	...	...	...	...	...	...	220.2	62.4	998.8
Salted, Male	...	...	...	...	...	...	359.4	101.9	1,630.2
" Female	...	...	...	...	...	...	302.6	85.8	1,372.6
Bloater, Male	...	...	...	...	...	...	211.6	60.0	959.8
" Female	...	...	...	...	...	...	193.0	54.7	875.4
Kipper	...	...	...	...	...	...	215.7	61.2	978.4
Mackerel	...	...	...	...	...	...	177.8	50.4	806.5
Whitebait (whole)	...	...	...	...	...	...	82.5	23.4	374.2
*Whitebait	...	...	...	...	...	...	89.1	25.3	404.2
*Sprats, Fresh	...	...	...	...	...	...	205.0	58.1	929.9
* " Smoked	...	...	...	...	...	...	284.7	80.7	1,291.4
*Smelts	...	...	...	...	...	...	91.7	26.0	416.0
Dogfish	...	...	...	...	...	...	132.4	37.5	600.6
Sturgeon	...	...	...	...	...	...	118.6	33.6	538.0
Salmon	...	...	...	...	...	...	223.2	63.3	1,012.4
<i>Fish with Less Fat—</i>									
Red Gurnet	...	...	...	...	...	...	91.0	25.8	412.8
Grey Gurnet	...	...	...	...	...	...	104.2	29.5	472.6
Red Mullet	...	...	...	...	...	...	125.3	35.5	568.4
Grey Mullet	...	...	...	...	...	...	116.2	32.9	527.1
Bass...	...	...	...	...	...	...	104.4	29.6	473.6
Bream	...	...	...	...	...	...	86.1	24.4	390.5

\* With Skin.

FISH.  
ANALYSES OF THE VARIOUS PARTS—continued.  
(A) *Flesh*—continued.

	Water.	Ash.	Protein.	Carbo- hydrate	Fat.	Total.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Non-Fatty Fish—</i>									
*Whiting	...	...	...	...	...	...	74.4	21.1	337.5
Haddock, Fresh	...	...	...	...	...	...	78.2	22.2	354.7
" Smoked...	...	...	...	...	...	...	83.2	23.6	377.4
Codling	...	...	...	...	...	...	75.7	21.5	343.4
Cod ...	...	...	...	...	...	...	72.7	20.6	329.8
Saithe	...	...	...	...	...	...	70.0	19.8	317.5
Hake	...	...	...	...	...	...	83.1	23.6	376.9
Ling...	...	...	...	...	...	...	82.5	23.4	374.2
Pout Whiting	...	...	...	...	...	...	78.5	22.2	356.1
Conger Eel	...	...	...	...	...	...	80.2	22.7	363.8
<i>Flat Fish—</i>									
Brill...	...	...	...	...	...	...	104.4	29.6	473.6
Dab	...	...	...	...	...	...	85.8	24.3	389.2
Flounder	...	...	...	...	...	...	71.7	20.3	325.2
Halibut	...	...	...	...	...	...	81.7	23.1	370.6
John Dory	...	...	...	...	...	...	87.5	24.8	396.9
Lemon Sole	...	...	...	...	...	...	81.0	23.0	367.4
Plaice	...	...	...	...	...	...	83.0	23.5	376.5
Skate	...	...	...	...	...	...	100.2	28.4	454.5
Sole	...	...	...	...	...	...	93.8	26.6	425.5
Turbot	...	...	...	...	...	...	92.1	26.1	417.8
Witches	...	...	...	...	...	...	75.5	21.4	342.5
<i>Fresh Water Fish—</i>									
Eel ...	...	...	...	...	...	...	289.7	82.1	1,314.1
Perch	...	...	...	...	...	...	79.6	22.6	361.1
Brook Trout	...	...	...	...	...	...	88.2	25.0	400.1





FISH.  
ANALYSES OF THE VARIOUS PARTS—continued.  
(B) *Skin*—continued.

	Water.	Ash.	Protein.	Carbo- hydrate.	Fat.	Total.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
Ling ...	66.6	3.1	31.9	—	0.2	101.8	132.6	37.6	601.5
Pout Whiting ...	67.2	6.9	25.9	—	0.3	100.3	109.0	30.9	494.4
Conger Eel ...	63.3	1.0	38.4	—	0.2	102.9	159.3	45.1	722.6
Brill, White ...	55.8	4.2	33.7	—	7.7	101.4	209.8	59.5	951.6
" Black ...	55.3	4.3	36.3	—	5.5	101.4	200.0	56.7	907.2
Dab, White ...	58.4	5.3	31.1	—	6.6	101.4	188.9	53.6	856.8
" Black ...	65.2	3.9	26.4	—	5.5	101.0	159.4	45.2	723.0
Flounder, White ...	71.8	1.6	26.8	—	1.6	101.8	124.9	35.4	566.1
" Halibut, White ...	74.4	1.9	24.8	—	1.0	102.1	111.0	31.5	503.5
Halibut, Black ...	64.4	2.0	32.9	—	2.7	102.0	160.0	45.5	725.8
" John Dory ...	65.4	2.4	30.3	—	1.6	99.7	139.1	39.4	631.0
Lemon Sole, White ...	68.2	1.3	28.0	—	3.5	101.0	174.4	41.8	668.6
" Black ...	64.3	3.1	28.0	—	3.7	99.1	149.2	42.3	676.8
Plaice, White and Black ...	64.6	3.3	27.3	—	3.7	98.9	146.3	41.5	663.6
Sole, White ...	58.7	1.5	27.4	—	12.1	99.7	224.9	63.8	1,020.1
" Black ...	51.1	6.8	35.7	—	6.8	100.4	209.6	59.4	950.8
Skate ...	47.0	11.5	38.9	—	1.2	98.6	170.7	48.4	774.3
" Turbot, White ...	75.9	3.4	21.8	—	0.1	101.2	90.3	25.6	409.6
" Black ...	62.8	0.8	32.8	—	3.4	99.8	166.1	47.1	753.4
Witch, White and Black ...	64.5	2.2	30.4	—	2.0	99.1	126.5	35.9	573.8
Perch ...	69.3	2.8	27.5	—	1.4	101.0	125.8	32.7	570.6
Trout ...	52.5	19.8	26.1	—	0.6	99.0	112.6	31.9	510.8
" "	60.8	3.0	34.8	—	2.9	101.5	169.7	48.1	769.8



## FISH.

## ANALYSES OF THE VARIOUS PARTS—continued.

(D) *Soft Roes.*

	Water.	Ash.	Protein.	Carbo- hydrate by Diff.	Fat.	Total.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Herring—</i>									
Fresh Yearling	...	...	...	...	...	...	242.7	68.8	1,100.9
Fresh	65.0	2.0	20.4	—	17.1	104.5	140.1	39.7	635.5
Salted	68.6	3.9	26.0	—	3.6	102.1	188.1	53.3	853.2
Bloater	53.9	13.9	29.7	—	7.2	104.7	150.1	42.5	680.8
Smelts	69.7	4.3	27.3	—	4.1	105.4	182.1	51.6	826.0
Bass	67.0	2.6	24.0	—	9.0	102.6	67.3	19.1	305.3
Brill (? Immature)	84.8	1.8	13.0	—	1.5	101.1	62.2	17.6	282.1
Turbot (? )	84.0	1.5	12.0	—	1.4	98.9	53.8	15.2	244.0
	85.1	1.1	11.3	—	0.8	98.3			

(E) *Livers.*

				(Gly- cogen).					
Dogfish	...	...	...	13.1	74.0	100.0	756.3	214.4	3,430.6
Red Gurnet	...	...	...	7.9	15.4	100.0	219.1	62.1	993.8
Grey Gurnet	...	...	...	2.0	6.5	100.0	134.3	38.1	609.2
Red Mullet	...	...	...	2.5	9.0	100.0	154.2	43.7	699.4
Bass	...	...	...	3.4	6.1	100.0	130.5	37.0	591.9
Pout Whiting	...	...	...	3.2	42.7	100.0	442.2	125.3	2,005.8
Hake	...	...	...	—	44.8	105.0	460.9	130.7	2,090.6
Pesch	...	...	...	2.1	2.2	100.0	92.2	26.1	418.2

(F) *Molluscs.*

Oyster, Flesh...	...	...	...	77.3	4.1	8.9	8.7	1.0	100.0	81.5	23.1	369.7
" Liquid	...	...	...	96.1	2.6	0.5	0.9	0.0	100.0	5.3	1.5	24.0
Mussels, Flesh	...	...	...	84.4	1.9	10.3	2.6	0.8	100.0	60.3	17.1	273.5
" Liquid	...	...	...	95.5	2.1	1.6	0.7	0.1	100.0	10.4	2.9	47.2
Scallop, Flesh...	...	...	...	78.9	1.8	18.2	0.9	0.2	100.0	80.2	22.7	363.8
" Liver, &c.	...	...	...	76.8	2.5	15.3	3.9	1.5	100.0	92.7	26.3	420.5
" Mantle (Waste)	...	...	...	85.6	2.7	11.7	0.0	0.3	100.3	50.8	14.4	230.4
Wheels	...	...	...	77.2	2.7	17.5	2.1	0.5	100.0	85.0	24.1	385.6
Winkles	...	...	...	72.4	2.7	18.0	4.8	2.1	100.0	113.0	32.0	512.6
Cockles, Unwashed	...	...	...	55.2	23.6	13.0	7.9	0.3	100.0	88.5	25.1	401.4
"	...	...	...	53.9	26.3	13.3	6.1	0.4	100.0	83.3	23.6	377.8
" Washed	...	...	...	61.8	18.0	13.9	5.8	0.5	100.0	85.4	24.2	387.4

(G) *Crustaceans.*

Crab, Flesh	...	...	...	73.6	2.7	22.4	1.1	0.2	100.0	98.2	27.8	445.4
Lobster, Flesh	...	...	...	75.0	3.1	19.7	1.9	0.3	100.0	91.4	25.9	414.6
Shrimp	...	...	...	67.6	6.9	23.2	1.4	0.9	100.0	109.2	31.0	495.3
Prawns	...	...	...	71.2	5.2	22.8	0.0	1.3	100.5	105.6	29.9	479.0
Crab, Liver, &c.	...	...	...	69.5	5.2	13.1	4.7	7.5	100.0	142.7	40.5	647.3
Lobster	...	...	...	63.8	3.3	14.5	3.4	14.5	100.0	208.2	59.0	944.4

FISH.  
ANALYSES CALCULATED ACCORDING TO PROPORTIONS OF PARTS.

	Per- centage Amount.	Water.	Ash.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Herring, Fresh—</i>									
Yearling, Flesh and Skin...	65.2	42.6	0.9	10.6	—	10.2			
" Soft Roe ...	4.1	2.7	0.08	0.8	—	0.7			
" Hard Roe ...	2.6	1.6	0.06	0.7	—	0.05			
" Water ...	28.1	—	—	—	—	—			
Total (including Skin)	100.0	46.9	1.04	12.1	—	10.95	151.4	42.9	686.8
<i>Male, Flesh,</i>									
" Soft Roe ...	59.8	40.4	1.6	11.1	—	6.5			
" Skin ...	15.3	10.5	0.6	4.0	—	0.6			
" Waste ...	4.8	2.3	0.2	1.1	—	1.4			
" Waste ...	20.1	—	—	—	—	—			
Total (including Skin)	100.0	53.2	2.4	16.2	—	8.5	145.5	41.2	660.0
Total (excluding Skin)	—	50.9	2.2	15.1	—	7.1	127.9	36.3	580.2
<i>Female, Flesh</i>									
" Hard Roe ...	64.1	40.5	1.3	11.6	—	10.1			
" Skin ...	8.7	5.2	0.2	2.4	—	0.3			
" Waste ...	3.8	1.1	0.3	1.3	—	1.3			
" Waste ...	23.4	—	—	—	—	—			
Total (including Skin)	100.0	46.8	1.8	15.3	—	11.7	171.5	48.6	777.9
Total (excluding Skin)	—	45.7	1.5	14.0	—	10.4	154.1	43.7	699.0



## FISH.

## ANALYSES CALCULATED ACCORDING TO PROPORTIONS OF PARTS—continued.

	Per-centage Amount.	Water.	Ash.	Protein.	Carbo-hydrate.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Herring, Bloater—</i>									
Female, Flesh	60.5	40.6	1.1	10.2	—	8.0			
" Hard Roe	17.5	11.4	0.3	4.7	—	0.3			
" Skin	2.5	0.6	0.2	1.0	—	0.8			
" Waste	19.5	—	—	—	—	—			
Total (including Skin)	100.0	52.6	1.6	15.9	—	9.1	149.8	42.5	679.2
Total (excluding Skin)	—	52.0	1.4	14.9	—	8.3	138.3	39.2	627.3
<i>Herring, Kipper—</i>									
Flesh	75.0	46.9	3.4	14.1	—	11.1			
Skin	6.4	1.5	0.3	1.5	—	3.5			
Waste	18.6	—	—	—	—	—			
Total (including Skin)	100.0	48.4	3.7	15.6	—	14.4	197.9	56.1	897.7
Total (excluding Skin)	—	46.9	3.4	14.1	—	11.1	161.0	45.6	730.3



<i>Mackerel—</i>												
Flesh	...	...	...	57.7	40.0	0.7	11.0	—	6.2			
Skin	...	...	...	2.7	1.2	0.0	0.8	—	0.8			
Waste	...	...	...	39.6	—	—	—	—	—			
Total (including Skin)	...	...	...	100.0	41.2	0.7	11.8	—	7.0	113.5	32.2	514.8
Total (excluding Skin)	...	...	...	—	40.0	0.7	11.0	—	6.2	102.8	29.1	466.3
<i>Whitebait—</i>												
Flesh and Skin	...	...	...	62.7	51.0	0.6	9.2	—	1.9			
Waste	...	...	...	37.3	—	—	—	—	—			
Total (including Skin)	...	...	...	100.0	51.0	0.6	9.2	—	1.9	55.4	15.7	251.3
Whole Fish	...	...	...	100.0	82.2	1.7	13.1	—	3.1	82.5	23.4	374.2
<i>Sprats, Fresh—</i>												
Flesh and Skin	...	...	...	74.0	49.4	1.3	12.6	—	10.7			
Waste	...	...	...	26.0	—	—	—	—	—			
Total (including Skin)	...	...	...	100.0	49.4	1.3	12.6	—	10.7	131.2	42.9	685.8
<i>Sprats, Smoked—</i>												
Flesh and Skin	...	...	...	79.2	39.4	3.2	21.2	—	14.9			
Waste	...	...	...	20.8	—	—	—	—	—			
Total (including Skin)	...	...	...	100.0	39.4	3.2	21.2	—	14.9	225.5	63.9	1,022.9

FISH.  
ANALYSES CALCULATED ACCORDING TO PROPORTIONS OF PARIS—continued.

	Per- centage Amount.	Water.	Ash.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—	
							100 gm.	1 lb.
<i>Smelts—</i>								
Flesh and Skin ...	...	46.3	1.0	10.4	—	1.2		
Hard Roe ...	...	0.9	0.0	0.3	—	0.2		
Soft Roe ...	...	1.7	0.1	0.6	—	0.2		
Waste ...	...	—	—	—	—	—		
Total (including Skin) ...	100.0	48.9	1.1	11.3	—	1.6	61.2	277.6
<i>Dogfish—</i>								
Flesh ...	...	36.9	0.6	9.6	—	2.8		
Skin ...	...	4.2	0.4	1.8	—	0.2		
Hard Roe ...	...	0.3	0.0	0.1	—	0.0		
Liver ...	...	1.1	0.0	0.4	—	8.9		
Waste ...	...	—	—	—	—	—		
Total (including Skin) ...	100.0	42.5	1.0	11.9	—	11.9	159.5	723.5
Total (excluding Skin) ...	—	38.3	0.6	10.1	—	11.7	150.2	681.3
Total (excluding Skin and Liver) ...	—	37.2	0.6	9.7	—	2.8	65.8	298.5

<i>Sturgeon Section—</i>											
Flesh	...	...	...	...	...	...	...	...	...	...	...
Soft Bone	...	...	...	...	...	...	...	...	...	...	...
Skin	...	...	...	...	...	...	...	...	...	...	...
Total (including Soft Bone and Skin)	88.1	68.0	1.0	15.7	—	4.3	—	33.9	543.0		
	6.7	5.4	0.1	0.9	—	0.3	—				
	5.2	3.2	0.3	1.7	—	0.2	—				
Total (excluding Skin)	—	73.4	1.1	16.6	—	4.6	—	31.4	502.6		
Total (excluding Soft Bone)	—	71.2	1.3	17.4	—	4.5	—	32.1	513.5		
<i>Salmon Section—</i>											
Flesh	...	...	...	...	...	...	...	...	...	...	...
Skin	...	...	...	...	...	...	...	...	...	...	...
Waste	...	...	...	...	...	...	...	...	...	...	...
Total (including Skin)	79.2	51.0	1.0	14.7	—	12.5	—	53.0	847.3		
	3.9	1.9	0.2	1.6	—	0.4	—				
	16.9	—	—	—	—	—	—				
Total (excluding Skin)	100.0	52.9	1.2	16.3	—	12.9	—	50.0	800.6		
	—	51.0	1.0	14.7	—	12.5	—				
<i>Red Gurnet—</i>											
Flesh	...	...	...	...	...	...	...	...	...	...	...
Skin	...	...	...	...	...	...	...	...	...	...	...
Hard Roe	...	...	...	...	...	...	...	...	...	...	...
Liver	...	...	...	...	...	...	...	...	...	...	...
Waste	...	...	...	...	...	...	...	...	...	...	...
Total (including Skin)	43.6	33.7	0.6	8.6	—	0.5	—	14.7	235.4		
	3.0	1.8	0.1	1.1	—	0.0	—				
	1.3	1.1	0.0	0.2	—	0.0	—				
	3.0	2.0	0.0	0.3	0.2	0.5	—				
	49.1	—	—	—	—	—	—				
Total (excluding Skin)	100.0	38.6	0.7	10.2	0.2	1.0	0.2	42.8	194.1		
	—	36.8	0.6	9.1	0.2	0.5	0.2				

FISH.  
ANALYSES CALCULATED ACCORDING TO PROPORTIONS OF PARTS—continued.

	—	Per- centage Amount.	Water.	Ash.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Grey Gurnet—</i>										
Flesh	...	...	33.4	0.5	8.9	—	1.0			
Skin...	...	...	1.6	0.1	1.4	—	0.1			
Hard Roe	...	...	5.9	0.2	2.2	—	0.2			
Liver	...	...	1.5	0.0	0.3	—	0.1			
Waste	...	...	—	—	—	—	—			
		41.8								
Total (including Skin)	...	100.0	42.4	0.8	12.8	—	1.4	65.5	18.6	297.1
Total (excluding Skin)	...	—	40.8	0.7	11.4	—	1.3	58.8	16.7	266.7
<i>Red Mullet—</i>										
Flesh	...	...	44.5	0.8	11.3	—	3.0			
Skin...	...	...	3.4	0.1	1.2	—	1.0			
Liver	...	...	1.2	0.0	0.3	—	0.1			
Waste	...	...	—	—	—	—	—			
		33.3								
Total (including Skin)	...	100.0	49.1	0.9	12.8	—	4.1	90.6	25.7	411.0
Total (excluding Skin)	...	—	45.7	0.8	11.6	—	3.1	76.4	21.7	346.5

<i>Grey Mullet—</i>												
...	...	...	...	...	...	...	...	...	...	...	...	...
Flesh	...	...	...	...	...	72.3	54.7	0.9	14.1	—	2.8	—
Skin	...	...	...	...	...	6.8	4.1	0.1	2.3	—	0.6	—
Waste	...	...	...	...	...	20.9	—	—	—	—	—	—
...	...	...	...	...	...	...	...	...	...	...	...	...
Total (including Skin)	...	...	...	...	...	100.0	58.8	1.0	16.4	—	3.4	28.0
Total (excluding Skin)	...	...	...	...	...	—	54.7	0.9	14.1	—	2.8	23.8
<i>Bass—</i>												
...	...	...	...	...	...	...	...	...	...	...	...	...
Flesh	...	...	...	...	...	53.0	40.8	0.6	10.2	—	1.3	—
Skin	...	...	...	...	...	4.7	3.0	0.1	1.4	—	0.3	—
Soft Roe	...	...	...	...	...	6.1	5.2	0.1	0.8	—	0.1	—
Liver	...	...	...	...	...	1.1	0.8	0.0	0.2	0.1	0.1	—
Waste	...	...	...	...	...	35.1	—	—	—	—	—	—
...	...	...	...	...	...	...	...	...	...	...	...	...
Total (including Skin)	...	...	...	...	...	100.0	49.8	0.8	12.6	0.1	1.8	19.5
Total (excluding Skin)	...	...	...	...	...	—	46.8	0.7	11.2	0.1	1.5	17.0
<i>Bream—</i>												
...	...	...	...	...	...	...	...	...	...	...	...	...
Flesh	...	...	...	...	...	43.4	34.2	0.5	7.6	—	0.6	—
Roe	...	...	...	...	...	0.7	—	—	—	—	—	—
Waste	...	...	...	...	...	55.9	—	—	—	—	—	—
...	...	...	...	...	...	...	...	...	...	...	...	...
Total (including Skin)	...	...	...	...	...	100.0	34.2	0.5	7.6	—	0.6	10.4
Total (excluding Skin)	...	...	...	...	...	...	...	...	...	...	...	...
<i>Whiting—</i>												
...	...	...	...	...	...	...	...	...	...	...	...	...
Flesh and Skin	...	...	...	...	...	63.6	51.1	0.7	11.3	—	0.1	—
Waste	...	...	...	...	...	36.4	—	—	—	—	—	—
...	...	...	...	...	...	...	...	...	...	...	...	...
Total (including Skin)	...	...	...	...	...	100.0	51.1	0.7	11.3	—	0.1	13.3
Total (excluding Skin)	...	...	...	...	...	...	...	...	...	...	...	...

(B 16295T)

K

FISH.  
ANALYSES CALCULATED ACCORDING TO PROPORTIONS OF PARTS—continued.

	Per- centage Amount.	Water.	Ash.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Haddock, Fresh—</i>									
Flesh ... ..	65.3	51.6	0.9	12.0	—	0.2			
Waste ... ..	34.7	—	—	—	—	—			
Total (excluding Skin)	100.0	51.6	0.9	12.0	—	0.2	51.1	14.5	231.8
<i>Smoked Haddock—</i>									
Flesh ... ..	76.3	57.4	3.4	14.9	—	0.2			
Waste ... ..	23.7	—	—	—	—	—			
Total (excluding Skin)	100.0	57.4	3.4	14.9	—	0.2	63.0	17.9	285.8
<i>Codling—</i>									
Flesh ... ..	54.3	43.6	0.6	9.8	—	0.1			
Skin ... ..	4.7	3.1	0.2	1.5	—	0.0			
Waste ... ..	41.0	—	—	—	—	—			
Total (including Skin)	100.0	46.7	0.8	11.3	—	0.1	47.3	13.4	214.6
Total (excluding Skin)	—	43.6	0.6	9.8	—	0.1	41.1	11.7	186.4

## Cod Section—

(B 16295T)

Flesh	...	...	...	67.1	1.0	14.6	—	0.1	...	...	...
Skin...	...	...	...	3.2	0.1	1.1	—	0.0	...	...	...
Waste	...	...	...	—	—	—	—	—	...	...	...
Total (including Skin)	...	...	...	70.3	1.1	15.7	—	0.1	65.3	18.5	296.2
Total (excluding Skin)	...	...	...	67.1	1.0	14.6	—	0.1	60.8	17.2	275.8
<i>Saithe Section—</i>											
Flesh	...	...	...	71.7	1.0	14.5	—	0.3	...	...	...
Skin...	...	...	...	2.7	0.2	1.3	—	0.0	...	...	...
Waste	...	...	...	—	—	—	—	—	...	...	...
Total (including Skin)	...	...	...	74.4	1.2	15.8	—	0.3	67.6	19.2	306.6
Total (excluding Skin)	...	...	...	71.7	1.0	14.5	—	0.3	62.2	17.6	282.1
<i>Hake—</i>											
Flesh	...	...	...	52.0	0.8	11.8	—	0.6	...	...	...
Skin	...	...	...	1.1	0.0	0.6	—	0.0	...	...	...
Liver	...	...	...	0.1	0.0	0.0	—	0.0	...	...	...
Waste	...	...	...	—	—	—	—	—	...	...	...
Total (including Skin)	...	...	...	53.2	0.8	12.4	—	0.6	56.4	16.0	255.8
Total (excluding Skin)	...	...	...	52.0	0.8	11.8	—	0.6	54.0	15.3	244.9

FISH.  
ANALYSES CALCULATED ACCORDING TO PROPORTIONS OF PARTS—continued.

	Per- centage Amount.	Water.	Ash.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Ling—</i>									
Flesh	59.6	46.7	0.8	11.9	—	0.1			
Skin...	5.8	3.9	0.2	1.9	—	0.0			
Hard Roe	7.9	5.4	0.2	1.7	—	0.3			
Waste	26.7	—	—	—	—	—			
Total (including Skin)	100.0	56.0	1.1	15.5	—	0.4	67.3	19.1	305.3
Total (excluding Skin)	—	52.1	0.9	13.6	—	0.4	50.5	16.9	269.9
<i>Pout Whiting—</i>									
Flesh	50.5	40.3	0.6	9.1	—	0.3			
Skin...	4.4	3.0	0.3	1.1	—	0.0			
Liver	0.8	0.4	0.0	0.1	—	0.3			
Waste	44.3	—	—	—	—	—			
Total (including Skin)	100.0	43.7	0.9	10.3	—	0.6	47.8	13.6	216.8
Total (excluding Skin)	—	40.7	0.9	10.2	—	0.3	44.6	12.6	202.3



<i>Conger Eel—</i>											
Flesh	...	...	...	...	...	...	...	...	...	...	...
Skin...	...	...	...	...	...	...	...	...	...	...	...
Waste	...	...	...	...	...	...	...	...	...	...	...
	65.3	52.0	0.8	12.5	—	0.1	63.7	18.1	288.9		
	7.2	4.6	0.1	2.8	—	0.0					
	27.5	—	—	—	—	—					
Total (including Skin)	100.0	56.6	0.9	15.3	—	0.1					
Total (excluding Skin)	—	52.0	0.8	12.5	—	0.1	52.2	14.8	236.8		
<i>Brill—</i>											
Flesh	...	...	...	...	...	...	...	...	...	...	...
Black Skin	...	...	...	...	...	...	...	...	...	...	...
White Skin	...	...	...	...	...	...	...	...	...	...	...
Soft Roe	...	...	...	...	...	...	...	...	...	...	...
Waste	...	...	...	...	...	...	...	...	...	...	...
	58.4	44.4	0.8	11.6	—	1.5					
	2.8	1.6	0.1	1.0	—	0.1					
	2.8	1.6	0.1	0.9	—	0.2					
	0.2	0.2	0.0	0.0	—	0.0					
	35.8	—	—	—	—	—					
Total (including Skin)	100.0	47.8	1.0	13.5	—	1.8	72.1	20.4	327.0		
Total (excluding Skin)	—	44.6	0.8	11.6	—	1.5	61.5	17.4	279.0		
<i>Dab—</i>											
Flesh	...	...	...	...	...	...	...	...	...	...	...
Black Skin	...	...	...	...	...	...	...	...	...	...	...
White Skin	...	...	...	...	...	...	...	...	...	...	...
Hard Roe	...	...	...	...	...	...	...	...	...	...	...
Waste	...	...	...	...	...	...	...	...	...	...	...
	60.2	47.6	0.8	11.0	—	0.7					
	4.0	2.6	0.2	1.1	—	0.2					
	3.3	1.9	0.2	1.0	—	0.2					
	3.1	2.3	0.1	0.7	—	0.0					
	29.4	—	—	—	—	—					
Total (including Skin)	100.0	54.4	1.3	13.8	—	1.1	66.8	18.9	303.0		
Total (excluding Skin)	—	49.9	0.9	11.7	—	0.7	54.5	15.5	247.2		

## FISH.

## ANALYSES CALCULATED ACCORDING TO PROPORTIONS OF PARTS—continued.

—	Per- centage Amount.	Water.	Ash.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Flounder—</i>									
Flesh	46.5	37.8	0.6	7.8	—	0.1			
Black Skin	5.3	3.9	0.1	1.3	—	0.0			
White Skin	4.1	2.9	0.1	1.1	—	0.1			
Waste	44.1	—	—	—	—	—			
Total (including Skin)	100.0	44.6	0.8	10.2	—	0.2	43.7	12.4	198.2
Total (excluding Skin)	—	37.8	0.6	7.8	—	0.1	32.9	9.3	149.2
<i>Halibut—</i>									
Flesh	70.2	55.5	1.0	13.2	—	0.3			
Black Skin	1.9	1.2	0.1	0.6	—	0.0			
White Skin	2.0	1.3	0.0	0.7	—	0.1			
Waste	25.9	—	—	—	—	—			
Total (including Skin)	100.0	58.0	1.1	14.5	—	0.4	63.2	17.9	286.7
Total (excluding Skin)	—	55.5	1.0	13.2	—	0.3	56.9	16.1	258.1

	... ..	42·1	32·8	0·5	7·8	—	0·5 0·1 0·1 —					
<i>John Dory</i> —	...	42·1	32·8	0·5	7·8	—	0·5					
Flesh ... ..	...	3·5	2·4	0·0	1·0	—	0·1					
Skin ... ..	...	3·2	2·5	0·1	0·5	—	—					
Hard Roe ... ..	...	51·2	—	—	—	—	—					
Waste ... ..	...											
Total (including Skin)	...	100·0	37·7	0·6	9·3	—	0·7	44·6	12·6	202·3		
Total (excluding Skin)	...	—	35·3	0·6	8·3	—	0·6	39·6	11·2	179·6		
<i>Lemon Sole</i> —	...											
Flesh ... ..	...	55·6	43·9	0·8	10·2	—	0·3					
Black Skin ... ..	...	5·5	3·6	0·2	1·5	—	0·2					
White Skin ... ..	...	4·7	3·0	0·2	1·3	—	0·2					
Hard Roe ... ..	...	6·3	4·8	0·1	1·3	—	0·0					
Waste ... ..	...	27·9	—	—	—	—	—					
Total (including Skin)	...	100·0	55·3	1·3	14·3	—	0·7	55·1	15·6	249·9		
Total (excluding Skin)	...	—	48·7	0·9	11·5	—	0·3	49·9	14·1	226·3		
<i>Plaice</i> —	...											
Flesh ... ..	...	34·1	27·6	0·3	5·4	—	0·7					
Skin ... ..	...	19·1	11·2	0·3	5·2	—	2·3					
Hard Roe ... ..	...	7·6	4·8	0·1	2·3	—	0·0					
Waste ... ..	...	39·2	—	—	—	—	—					
Total (including Skin)	...	100·0	43·6	0·7	12·9	—	3·0	80·8	22·9	366·5		
Total (excluding Skin)	...	—	32·4	0·4	7·7	—	0·7	38·1	10·8	172·8		

FISH.  
ANALYSES CALCULATED ACCORDING TO PROPORTIONS OF PARTS—continued.

	Per centage Amount.	Water.	Ash.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Sole—</i>									
Flesh ...	61.7	48.1	0.7	11.6	—	1.1			
Black Skin ...	3.1	1.5	0.4	1.2	—	0.0			
White Skin ...	2.9	1.5	0.2	1.0	—	0.2			
Hard Roe ...	5.7	3.8	0.1	1.4	—	0.2			
Waste ...	26.6	—	—	—	—	—			
Total (including Skin) ...	100.0	54.9	1.4	15.2	—	1.5	76.3	21.6	346.1
Total (excluding Skin) ...	—	51.9	0.8	13.0	—	1.3	65.4	18.5	296.6
<i>Shake Section—</i>									
Flesh ...	65.1	50.0	0.7	15.8	—	0.1			
Skin ...	28.8	21.9	1.0	6.3	—	0.0			
Bone ...	6.1	—	—	—	—	—			
Total (including Skin) ...	100.0	71.9	1.7	22.1	—	0.1	91.5	25.9	415.0
Total (excluding Skin) ...	—	50.0	0.7	15.8	—	0.1	65.7	18.6	298.0

<i>Turbot—</i>										
Flesh	...	...	...	52.3	40.9	0.5	8.8	—	1.3	
Black Skin	...	...	...	3.9	2.5	0.1	1.2	—	0.1	
White Skin	...	...	...	3.4	2.1	0.0	1.1	—	0.1	
Soft Roe	...	...	...	0.4	0.3	0.0	0.0	—	0.0	
Waste	...	...	...	40.0	—	—	—	—	—	
Total (including Skin)	...	...	...	100.0	45.8	0.6	11.1	—	1.5	269.9
Total (excluding Skin)	...	...	...	—	41.2	0.5	8.8	—	1.3	218.6
<i>Witches—</i>										
Flesh	...	...	...	62.5	50.6	0.4	10.9	—	0.3	
Black Skin	...	...	...	3.8	} 5.4	0.2	2.1	—	0.1	
White Skin	...	...	...	4.0		—	—	—	—	
Liver	...	...	...	2.6		—	—	—	—	
Waste	...	...	...	27.1	—	—	—	—	—	
Total (including Skin)	...	...	...	100.0	56.0	0.6	13.0	—	0.4	258.6
Total (excluding Skin)	...	...	...	—	50.6	0.4	10.9	—	0.3	215.5
<i>Eel—</i>										
Flesh	...	...	...	58.8	35.3	0.5	8.3	—	14.6	
Skin	...	...	...	18.0	—	—	—	—	—	
Hard Roe	...	...	...	1.8	1.1	0.0	0.2	—	0.5	
Waste	...	...	...	21.4	—	—	—	—	—	
Total (excluding Skin)	...	...	...	100.0	36.4	0.5	8.5	—	15.1	798.8

FISH.  
ANALYSES CALCULATED ACCORDING TO PROPORTIONS OF PARTS—continued.

	Per- centage Amount.	Water.	Ash.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Perch</i> —									
Flesh ...	40.6	32.6	0.4	7.2	—	0.3			
Skin... ..	10.5	5.5	2.1	2.7	—	0.0			
Hard Roe ...	16.0	12.3	0.2	2.4	—	0.6			
Liver ...	1.6	1.3	0.0	0.3	—	0.0			
Waste ...	31.3	—	—	—	—	—			
Total (including Skin)	100.0	51.7	2.7	12.6	—	0.9	60.0	17.0	272.0
Total (excluding Skin)	—	46.2	0.6	9.9	—	0.9	49.0	13.9	222.3
<i>Brook Trout</i> —									
Flesh ...	68.0	53.6	0.8	12.8	—	0.8			
Skin ...	7.3	4.4	0.2	2.5	—	0.2			
Waste ...	24.7	—	—	—	—	—			
Total (including Skin)	100.0	58.0	1.0	15.3	—	1.0	72.0	20.4	326.6
Total (excluding Skin)	—	53.6	0.8	12.8	—	0.8	59.9	17.0	271.7
<i>Oysters</i> —									
Flesh ...	10.6	8.2	0.4	0.9	0.8	0.1			
Water ...	11.1	10.7	0.3	0.1	0.1	0.0			
Waste ...	78.3	—	—	—	—	—			
Total ...	100.0	18.9	0.7	1.0	0.9	0.1	8.7	2.5	39.5

<i>Mussels</i> —												
Flesh	...	...	...	...	...	24.4	20.6	0.5	2.5	0.6	0.2	...
Water	...	...	...	...	...	22.2	21.2	0.5	0.4	0.2	0.0	...
Waste	...	...	...	...	...	53.3	—	—	—	—	—	...
Total	...	...	...	...	...	99.9	41.8	1.0	2.9	0.8	0.2	77.1
<i>Scallops</i> —												
Muscle	...	...	...	...	...	13.4	10.6	0.2	2.4	0.1	0.0	...
Liver, &c.	...	...	...	...	...	4.5	3.5	0.1	0.7	0.2	0.1	...
Mantle (waste)	...	...	...	...	...	7.5	6.4	0.2	0.9	—	0.0	...
Interior Waste	...	...	...	...	...	6.2	—	—	—	—	—	...
Shell	...	...	...	...	...	68.4	—	—	—	—	—	...
Total (including Mantle)	...	...	...	...	...	100.0	20.5	0.5	4.0	0.3	0.1	84.4
Total (excluding Mantle)	...	...	...	...	...	—	14.1	0.3	3.1	0.3	0.1	67.6
<i>W helks</i> —												
Flesh	...	...	...	...	...	42.1	32.5	1.1	7.4	0.9	0.2	...
Waste	...	...	...	...	...	57.9	—	—	—	—	—	...
Total	...	...	...	...	...	100.0	32.5	1.1	7.4	0.9	0.2	162.8
<i>Winkles</i> —												
Flesh	...	...	...	...	...	22.3	16.1	0.6	4.0	1.1	0.5	...
Shell	...	...	...	...	...	77.7	—	—	—	—	—	...
Total	...	...	...	...	...	100.0	16.1	0.6	4.0	1.1	0.5	116.1
<i>Cockles</i> —												
Salted, Unwashed	...	...	...	...	...	100.0	55.2	23.6	13.0	7.9	0.3	401.4
"	...	...	...	...	...	100.0	53.9	26.3	13.3	6.1	0.4	377.8
" Washed	...	...	...	...	...	100.0	61.8	18.0	13.9	5.8	0.5	387.4

FISH.  
ANALYSES CALCULATED ACCORDING TO PROPORTIONS OF PARTS—continued.

	Per- centage Amount.	Water.	Ash.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Crab—</i>									
Flesh ...	26.2	19.3	0.7	5.9	0.3	0.0			
Liver, &c. ...	14.4	10.0	0.8	1.9	0.7	1.1			
Waste and Shell ...	59.4	—	—	—	—	—			
Total ...	100.0	29.3	1.5	7.8	1.0	1.1	46.3	13.1	210.0
<i>Lobster—</i>									
Flesh ...	53.9	40.4	1.7	10.6	1.0	0.2			
Liver, &c. ...	5.1	3.2	0.2	0.7	0.5	0.7			
Waste and Shell ...	41.0	—	—	—	—	—			
Total ...	100.0	43.6	1.9	11.3	1.5	0.9	60.9	17.3	276.2
<i>Shrimps—</i>									
Flesh ...	47.2	31.9	3.3	10.9	0.7	0.4			
Shell ...	52.8	—	—	—	—	—			
Total ...	100.0	31.9	3.3	10.9	0.7	0.4	51.3	14.5	232.7
<i>Prawns—</i>									
Flesh ...	46.0	32.8	2.4	10.5	0.0	0.6			
Shell ...	54.0	—	—	—	—	—			
Total ...	100.0	32.8	2.4	10.5	0.0	0.6	48.6	13.8	220.5



## FRESH VEGETABLES.

The common vegetables can be conveniently divided into several groups, such as root, leaf, fruit, leguminous, etc. Such a division makes the members of a group easily comparable. All the common vegetables, except beet spinach, were obtained. Beet spinach unfortunately could not be procured at the time these analyses were being made.

The whole vegetable, as purchased, is not usually eaten, so that, before analysis, the various parts were separated as far as possible. These parts were weighed, and in nearly every case the separate parts were analysed. The food value of the whole vegetable, as purchased, is calculated from the proportions of the parts and the analytical data. Further, the same calculations give the food value of the edible portion allowing for the remainder as waste. The vegetables were procured as often as possible in the whole condition, *e.g.*, turnips and other root vegetables, though the leafy portion is generally removed before the vegetable is sold on the market. The food value of the whole plant is then obtained.

Generally only one analysis of each vegetable was made, but in some cases separate analyses were made of more than one specimen. These analyses show distinct differences (see carrots, parsnips, radish, cabbage). This is partly accounted for by the weather at the time these vegetables were marketed. During periods of wet weather, though no rain fell at the time of collecting, the vegetables contained more water. Variations must also occur depending upon the nature of the soil on which the vegetable is grown and general climate. In a few cases, such as potatoes, peas, beans, marrows, analyses of the cooked vegetable have been made, as well as of the raw vegetable. The results show that a distinct, though small, loss occurs in cooking. Excepting tubers and roots, the energy value of vegetables is very small. The chief value of vegetables, especially if they are not cooked for a long period, is in the supply of the accessory food factors. Cabbage and swedes are particularly valuable in preventing scurvy (see appendix, p. 255).

## PROPORTIONS OF PARTS.

<i>Green Peas.</i>					<i>Green Peas.</i>				
			Gm.	Per-centage.			Gm.	Per-centage	
Kernel	...	...	72	30.5	Kernel	...	72	72.0	
Skin	...	...	28	12.0	Skin	...	28	28.0	
Pods	...	...	124	52.5					
Waste	...	...	12	5.0					
Total	...	...	236	100.0	Total	...	100	100.0	

## FRESH VEGETABLES.

## PROPORTIONS OF PARTS—continued.

		Gm.	Per- centage.
<i>Broad Beans.</i>			
Kernel	...	64	23.7
Skin	...	33	12.2
Pods	...	173	64.1
Total	...	270	100.0

Kernel	...	64	66.0
Skin	...	33	34.0
Total	...	97	100.0

<i>Scarlet Runner Beans.</i>			
Edible	...	222	91.7
Waste	...	20	8.3
Total	...	242	100.0

<i>French Beans.</i>			
Edible	...	225	91.1
Waste	...	22	8.9
Total	...	247	100.0

<i>White Wax or Butter Beans.</i>			
Edible	...	80.5	97.0
Waste	...	2.5	3.0
Total	...	83.0	100.0

<i>Uncooked Potatoes, New.</i>			
Tuber	...	794	97.4
Skin	...	21	2.6
Total	...	815	100.0

<i>Uncooked Potatoes, Old.</i>			
Tuber	...	175	92.1
Skin	...	15	7.9
Total	...	190	100.0

<i>Cooked Potatoes, New.</i>			
Tuber	...	383	95.8
Skin	...	17	4.2
Total	...	400	100.0

		Gm.	Per- centage.
<i>Cooked Potatoes, Old.</i>			
Tuber	...	207	92.0
Skin	...	18	8.0
Total	...	225	100.0

<i>Jerusalem Artichoke.</i>			
Edible part	...	1,000	40.0
Stems and roots	...	1,500	60.0
Total	...	2,500	100.0

<i>Radish.</i>			
Edible part	...	15	45.5
Leaf	...	17	51.5
Rootlets	...	1	3.0
Total	...	33	100.0

Edible part	...	152	27.8
Leaf and rootlets	...	395	72.2
Total	...	547	100.0

<i>Turnips.</i>			
Leaves	...	368	39.6
Edible part	}	562	60.4
Scrapings			
Total	...	930	100.0

Edible part	...	362	87.4
Scrapings	...	52	12.6
Total	...	414	100.0

<i>Kohlrabi.</i>			
Leaf and stalk	...	340	40.4
Edible part	...	385	45.7
Scrapings	...	117	13.9
Total	...	842	100.0

Edible part	...	385	76.7
Scrapings	...	117	23.3
Total	...	502	100.0

## FRESH VEGETABLES.

PROPORTIONS OF PARTS—*continued*.

		Gm.	Per-centage.
<i>Swedes.</i>			
Leaf ...	...	325	37·8
Edible part ...	...	452	52·6
Scrapings ...	...	83	9·6
Total ...	...	860	100·0
Edible part ...	...	452	84·5
Scrapings ...	...	83	15·5
Total ...	...	535	100·0

<i>Beetroot.</i>			
Leaf, &c. ...	...	312	37·6
Edible part ...	...	515	62·1
Rootlets ...	...	2	0·3
Total ...	...	829	100·0

<i>Carrots.</i>			
Leaf ...	...	56	20·0
Root ...	...	225	80·0
Total ...	...	281	100·0

<i>Parsnip.</i>			
Leaf ...	...	103	35·3
Edible part ...	...	164	56·1
Scrapings and rootlets ...	...	25	8·6
Total ...	...	292	100·0
Edible part ...	...	164	86·8
Scrapings ...	...	25	13·2
Total ...	...	189	100·0

<i>Salsify.</i>			
Leaf ...	...	262	45·8
Edible part ...	...	271	47·4
Scrapings and rootlets ...	...	39	6·8
Total ...	...	572	100·0
Edible part ...	...	271	87·4
Scrapings ...	...	39	12·6
Total ...	...	310	100·0

		Gm.	Per-centage.
<i>Scorzonera.</i>			
Leaf ...	...	650	88·4
Edible part ...	...	68	9·2
Scrapings ...	...	17	2·4
Total ...	...	735	100·0
Edible part ...	...	68	80·0
Scrapings ...	...	17	20·0
Total ...	...	85	100·0

<i>Cauliflower.</i>			
Flower ...	...	238	45·5
Inside leaf, edible ...	...	35	6·7
Waste leaf and stem	...	250	47·8
Total ...	...	523	100·0

<i>Green Artichoke.</i>			
Waste leaf ...	...	142	68·0
Edible leaf ...	...	39	18·6
" Fond " ...	...	28	13·4
Total ...	...	209	100·0

<i>Marrow, Green.</i>			
Edible part ...	...	775	67·4
Seed part ...	...	200	17·4
Skin ...	...	175	15·2
Total ...	...	1,150	100·0

<i>Marrow, Yellow.</i>			
Edible part ...	...	775	55·4
Seed part ...	...	350	25·0
Skin ...	...	275	19·6
Total ...	...	1,400	100·0

<i>Aubergine or Egg Plant.</i>			
(1) Edible ...	...	185	100·0
(2) Edible ...	...	177	100·0

<i>Cucumber.</i>			
Edible part ...	...	309	82·6
Skin ...	...	65	17·4
Total ...	...	374	100·0

<i>Tomatoes.</i>			
Edible ...	...	...	100·0

## FRESH VEGETABLES.

PROPORTIONS OF PARTS—*continued.**English Onions.*

	Gm.	Per-centage.
Edible part ...	470	95.5
Outer skin ...	22	4.5
Total ...	492	100.0

*Leek.*

Leaf ...	140	55.6
Edible part ...	110	43.6
Rootlets ...	2	0.8
Total ...	252	100.0

*Asparagus.*

	Gm.	Per-centage.
Edible part ...	174	42.8
Waste stalk ...	233	57.2
Total ...	407	100.0

*Seakale.*

Edible part ...	175	77.1
Root and waste ...	52	22.9
Total ...	227	100.0

*Rhubarb.*

Edible part ...	436	82.1
Leaf and waste ...	95	17.9
Total ...	531	100.0

*Lettuce.*

	Gm.	Per-centage.
Edible part ...	278	63.5
Outside leaf and stalk ...	160	36.5
Total ...	438	100.0

*Batavia.*

Edible part ...	357	54.0
Outside leaves ...	280	42.3
Root ...	24	3.7
Total ...	661	100.0

*Endive.*

Edible inside leaves ...	193	73.6
Outside leaves and stalk ...	69	26.4
Total ...	262	100.0

*Spanish Onions.*

	Gm.	Per-centage.
Edible part ...	484	98.0
Outer skin ...	10	2.0
Total ...	494	100.0

*Garlic.*

Edible part ...	78	91.8
Skin ...	7	8.2
Total ...	85	100.0

*Celery.*

	Gm.	Per-centage.
Edible stalk and leaf ...	515	88.5
Waste leaf ...	67	11.5
Total ...	582	100.0

*Mushroom.*

Edible part ...	178	79.4
Stalk ...	27	12.0
Skin ...	19	8.6
Total ...	224	100.0

*Watercress.*

	Gm.	Per-centage.
Leaves ...	75	50.0
Large stalk ...	75	50.0
Total ...	150	100.0

*Corn Salad.*

Leaf ...	37.0	96.1
Roots ...	1.5	3.9
Total ...	38.5	100.0

*Parsley.*

Leaf ...	57	72.2
Stalk ...	22	27.8
Total ...	79	100.0

FRESH VEGETABLES.  
PROPORTIONS OF PARTS—*continued.*

<i>Cabbage.</i>			<i>Perpetual Spinach.</i>		
	Gm.	Per-centage.		Gm.	Per-centage.
(1) Inside leaves	775	62.0	Leaf ...	86	70.5
Outside leaves and stalk ...	475	38.0	Stalk ...	36	29.5
Total ...	1,250	100.0	Total ...	122	100.0
(2) Inside leaves ...	740	48.4	Spinach leaf ...	—	100.0
Outside leaves and stalk ...	790	51.6			
Total ...	1,530	100.0			
<i>Brussels Sprouts.</i>			<i>Sprouting Broccoli.</i>		
Edible part ...	195	76.8	Leaf ...	180	87.0
Outside leaves and stalk ...	59	23.2	Stalk ...	27	13.0
Total ...	254	100.0	Total ...	207	100.0
<i>Savoy Cabbage.</i>			<i>Curly Kale.</i>		
Inside leaves ...	282	56.9	Leaf ...	56	69.1
Outside leaves and stalk ...	214	43.1	Stalk and root ...	25	30.9
Total ...	496	100.0	Total ...	81	100.0
<i>Red Cabbage.</i>			<i>Thousand Heads.</i>		
Inside leaves ...	795	57.4	Leaf ...	112	56.5
Outside leaves and stalk ...	590	42.6	Stem ...	72	36.4
Total ...	1,385	100.0	Main stalk ...	14	7.1
			Total ...	198	100.0

FRESH VEGETABLES.  
ANALYTICAL DATA.  
(A).—*Legumes.*

	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate by diff.	Fat.	Energy Value.—Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Green Peas, Raw—</i>									
Kernel ... ..	75.0	0.9	0.2	6.5	16.8	0.6	101.1	28.7	458.6
Skin ... ..	78.8	1.1	6.3	2.6	11.0	0.2	57.6	16.3	261.3
Pod ... ..	87.4	0.5	2.8	1.8	7.5	—	38.1	10.8	172.8
<i>Green Peas, Boiled</i>									
Kernel ... ..	78.5	0.9	0.5	5.1	14.3	0.7	79.4	22.5	360.2
Skin ... ..	78.0	1.0	6.7	3.3	10.7	0.3	60.2	17.1	273.1
<i>Broad Beans, Raw—</i>									
Kernel ... ..	65.5	1.4	0.5	9.4	22.8	0.4	135.7	38.5	615.5
Skin ... ..	78.6	1.0	6.6	2.1	11.6	0.1	57.1	16.2	259.0
Pod ... ..	85.7	0.7	1.5	1.5	10.5	0.1	50.1	14.2	227.2
<i>Broad Beans, Boiled—</i>									
Kernel ... ..	76.0	1.1	0.4	7.2	15.0	0.3	93.8	26.6	425.5
Skin ... ..	73.9	1.3	8.5	4.0	12.2	0.1	67.4	19.1	305.7
<i>French Beans—</i>									
Edible part... ..	91.5	0.7	1.0	1.9	4.8	0.1	28.4	8.1	128.8
<i>Scarlet Runner Beans—</i>									
Edible part... ..	93.2	0.7	0.8	1.3	3.9	0.1	22.3	6.3	101.2
<i>White Wax or Butter Beans—</i>									
Edible part... ..	90.7	0.7	0.8	2.1	5.6	0.1	32.5	9.2	147.4

(B).—Tubers and Roots.

<i>Potatoes Raw, New—</i>		76.2	0.8	0.4	1.6	21.0	0.02	92.8	26.3	420.9
Tuber	...	...	...	4.6	2.8	7.9	0.4	47.6	13.5	215.9
<i>Potatoes, Raw, Old—</i>		...	...	...	...	...	...	...	...	...
Tuber	...	...	1.4	0.8	2.1	19.6	0.03	89.3	25.3	405.1
Skin	...	...	4.9	4.7	2.9	11.1	0.3	60.2	17.1	273.1
<i>Potatoes, Boiled, New—</i>		...	...	...	...	...	...	...	...	...
Tuber	...	...	0.8	0.4	1.4	19.7	0.01	86.6	24.5	392.8
Skin...	...	...	2.3	3.6	3.7	23.5	0.3	114.3	32.4	518.5
<i>Potatoes, Boiled, Old—</i>		...	...	...	...	...	...	...	...	...
Tuber	...	...	1.0	0.6	1.9	16.0	0.02	73.6	20.9	333.9
Skin	...	...	2.1	2.7	2.7	15.9	0.2	78.1	22.1	354.3
<i>Artichoke, Jerusalem—</i>		...	...	...	...	...	...	...	...	...
Tuber	...	...	1.3	0.7	1.9	17.4	0.03	79.4	22.5	360.2
<i>Beetroot—</i>		...	...	...	...	...	...	...	...	...
Leaf	...	...	2.1	1.2	1.9	4.5	0.2	28.1	8.0	127.5
Edible root	...	...	1.3	1.0	1.2	6.2	0.1	31.3	8.9	142.0
<i>Carrot—</i>		...	...	...	...	...	...	...	...	...
(1) Edible part	...	...	0.7	0.9	0.9	8.0	0.1	37.4	10.6	169.6
(2) Edible part	...	...	1.1	1.4	1.5	11.2	0.1	53.0	15.0	240.4
Mean	...	...	0.9	1.1	1.2	9.6	0.1	45.2	12.8	205.0
Leaf	...	...	3.0	2.4	2.4	12.1	0.3	62.2	17.6	282.1
<i>Kohlrabi—</i>		...	...	...	...	...	...	...	...	...
Edible part...	...	...	1.2	0.7	2.2	4.5	0.03	27.7	7.9	125.6
Skin	...	...	1.9	2.3	3.2	7.8	0.1	46.0	13.0	208.7
Leaf and stalk	...	...	3.1	2.0	2.5	6.9	0.4	42.3	12.0	191.9
<i>Parsnip—</i>		...	...	...	...	...	...	...	...	...
(1) Edible part	...	...	1.1	3.0	1.7	21.1	0.5	98.1	27.8	445.0
Scrapings	...	...	2.7	4.5	1.5	15.1	0.2	69.9	19.8	317.1
Leaf	...	...	3.0	2.5	1.6	10.3	0.3	51.6	14.6	234.1
(2) Whole root	...	...	1.0	1.4	1.9	18.4	0.5	87.9	24.9	398.7

FRESH VEGETABLES.  
ANALYTICAL DATA—continued.  
(B).—*Tubers and Roots*—continued.

	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate by diff.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Radish</i> —									
(1) Edible part ...	93.6	0.8	1.1	1.0	3.4	0.1	19.0	5.4	86.2
Leaf ...	90.4	2.2	2.5	2.6	2.2	0.1	20.6	5.8	93.4
(2) Edible part ...	94.7	0.8	0.6	0.6	3.26	0.04	16.2	4.6	73.5
Leaf and rootlets ...	90.8	2.4	1.4	2.3	2.7	0.4	24.2	6.9	109.8
<i>Salsify</i> —									
Edible part root ...	76.4	1.2	1.6	2.8	17.9	0.1	85.8	24.3	389.2
Scrapings ...	76.5	4.2	2.8	2.7	12.5	1.3	74.4	21.1	337.5
Leaf.. ...	84.8	2.5	2.0	2.4	7.6	0.7	47.5	13.5	215.5
<i>Scorzonera</i> —									
Edible part root ...	72.8	0.9	2.3	3.9	19.9	0.2	99.4	28.2	450.9
Scrapings ...	66.4	3.7	3.2	2.3	23.6	0.8	113.6	32.2	513.3
<i>Swede</i> —									
Edible part ...	88.8	0.6	1.4	1.0	8.1	0.1	38.2	10.8	173.3
Skin and rootlets...	85.1	1.6	2.1	2.6	8.5	0.1	46.4	13.2	210.5
Leaf... ...	87.7	1.7	1.4	2.2	6.7	0.3	39.3	11.1	178.3
<i>Turnip</i> —									
Inside edible part...	93.0	0.7	0.6	1.2	4.4	0.1	23.9	6.8	108.4
Scrapings ...	88.5	2.5	1.8	2.5	4.6	0.1	30.0	8.5	136.1
Leaves ...	88.4	2.5	1.7	2.4	4.8	0.2	31.4	8.9	142.4





## FRESH VEGETABLES.

## ANALYTICAL DATA—continued.

(D).—*Flowers and Fruits*—continued.

	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate by diff.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Cauliflower</i> —									
Flower and edible leaf	90.2	0.9	0.9	1.9	5.9	0.2	33.8	9.6	153.3
Stalk and waste leaf	89.4	1.1	1.6	1.1	6.7	0.1	32.9	9.3	149.2
<i>Cucumber</i> —									
Edible part...	96.7	0.4	0.2	0.6	2.0	0.07	11.3	3.2	51.3
Skin	95.0	0.9	0.7	0.8	2.5	0.1	14.5	4.1	65.8
<i>Marrow, Raw, Green</i> —									
Edible part...	93.0	0.4	0.6	0.4	5.2	0.05	23.4	6.6	106.1
Seed part	91.9	0.6	0.8	1.2	5.4	0.1	28.0	7.9	127.0
Skin	88.9	0.6	2.7	1.4	6.2	0.2	33.0	9.4	149.7
<i>Marrow, Raw, Yellow</i> —									
Edible part...	96.8	0.3	0.4	0.2	2.2	0.06	10.4	2.9	47.2
Seed part	92.8	0.7	0.8	1.3	4.3	0.1	23.9	6.8	108.4
Skin	95.5	0.5	0.8	0.7	2.4	0.1	13.6	3.8	61.7
<i>Marrow, Boiled, Green</i> —									
Edible part...	93.3	0.5	0.8	0.4	5.0	0.04	22.5	6.4	102.1
<i>Marrow, Boiled, Yellow</i> —									
Edible part...	96.3	0.6	0.5	0.3	2.3	0.03	10.9	3.1	49.4
<i>Tomatoes</i> —									
Whole	93.5	0.5	0.7	0.7	4.5	0.1	22.2	6.3	100.7



## FRESH VEGETABLES.

## ANALYTICAL DATA—continued.

(F).—Leaves (as Salads)—continued.

	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate by diff.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
<i>Endive</i> —									
Inside edible part ...	93.4	1.1	0.8	1.7	2.9	0.1	19.8	5.6	89.8
Outside leaf ...	92.1	2.2	1.6	1.4	2.6	0.1	17.3	4.9	78.5
<i>Lettuce</i> —									
Inside edible part ...	95.4	0.8	0.6	1.1	1.9	0.2	14.2	4.0	64.4
Outside leaf and stalk	94.8	1.3	0.7	0.7	2.3	0.2	14.2	4.0	64.4
<i>Mustard</i> —									
Whole ...	94.2	1.3	0.6	1.4	2.1	0.4	18.1	5.1	82.1
Whole ...	95.7	1.0	0.5	1.1	1.4	0.3	13.0	3.7	59.0
Whole mean ...	95.0	1.1	0.5	1.3	1.8	0.3	15.5	4.4	70.3
<i>Parsley</i> —									
Leaf ...	78.8	2.9	2.2	3.8	11.6	0.7	69.7	19.8	316.2
Stalk ...	80.6	2.9	3.0	1.4	11.8	0.3	56.9	16.1	258.1
<i>Watercress</i> —									
Leaf part ...	92.5	1.0	0.5	1.4	4.2	0.4	26.7	7.6	121.1
Stalk part ...	95.3	0.9	0.6	1.2	1.8	0.2	14.2	4.0	64.4



## FRESH VEGETABLES.

CALCULATION OF ANALYTICAL DATA SHOWING FIGURES FOR EDIBLE PART, WHOLE VEGETABLE, AND ALLOWANCE FOR WASTE.  
(A).—*Legumes*.

—	Per- centage Amount.	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Green Peas, Raw—</i>										
Kernel ... ..	72.0	54.0	0.7	0.1	4.7	12.1	0.4			
Skin ... ..	28.0	22.1	0.3	1.8	0.7	3.1	0.1			
Whole Pea as eaten	100.0	76.1	1.0	1.9	5.4	15.2	0.5	89.1	25.2	404.2
<i>Green Peas, Boiled—</i>										
Kernel ... ..	72.0	56.5	0.7	0.4	3.7	10.3	0.5			
Skin ... ..	28.0	21.8	0.3	1.9	0.9	3.0	0.1			
Whole Pea as eaten	100.0	78.3	1.0	2.3	4.6	13.3	0.6	79.0	22.4	358.3
<i>Broad Beans, Raw—</i>										
Kernel ... ..	66.0	43.2	0.9	0.3	6.2	15.1	0.3			
Skin ... ..	34.0	26.7	0.3	2.2	0.7	3.9	0.0			
Whole Bean as eaten	100.0	69.9	1.2	2.5	6.9	19.0	0.3	109.0	30.9	494.4
<i>Broad Beans, Boiled—</i>										
Kernel ... ..	66.0	50.2	0.7	0.3	4.7	9.9	0.2			
Skin ... ..	34.0	25.1	0.4	2.9	1.4	4.2	0.0			
Whole Bean as eaten	100.0	75.3	1.1	3.2	6.1	14.1	0.2	84.7	24.0	384.2

*Green Peas, Raw—*

Kernel ... ..	30.5	22.9	0.3	0.1	2.0	5.1	0.2			
Skin ... ..	12.0	9.5	0.1	0.8	0.3	1.3	0.0			
Pod ... ..	52.5	45.9	0.3	1.5	1.0	3.9	—			
Waste ... ..	5.0	—	—	—	—	—	—			
Whole Plant as purchased	100.0	78.3	0.7	2.4	3.3	10.3	0.2	57.6	16.3	261.3

*Broad Beans, Raw—*

Kernel ... ..	23.7	15.5	0.3	0.1	2.2	5.4	0.1			
Skin ... ..	12.2	9.6	0.1	0.8	0.3	1.4	0.0			
Pod ... ..	64.1	54.9	0.5	1.0	1.0	6.7	0.1			
Whole Plant as purchased	100.0	80.0	0.9	1.9	3.5	13.5	0.2	71.6	20.3	324.8

*Edible Part, allowing for waste—*

Green Peas ... ..	42.5	32.3	0.4	0.8	2.3	6.5	0.2	37.9	10.7	171.9
Broad Beans ... ..	35.9	25.1	0.4	0.9	2.5	6.8	0.1	39.1	11.1	177.4
Scarlet Runner Beans ... ..	91.7	85.5	0.6	0.7	1.2	3.6	0.1	20.6	5.8	93.4
French Beans ... ..	91.1	83.4	0.6	0.9	1.7	4.4	0.1	25.9	7.3	117.5
White Wax or Butter Beans ... ..	97.0	88.0	0.7	0.8	2.0	5.4	0.1	30.3	8.6	137.4

*(B).—Tubers and Roots.*

<i>Potatoes, Raw, New—</i>										
Tuber ... ..	97.4	74.2	0.8	0.4	1.6	20.4	0.02	90.4	25.6	410.0
Skin ... ..	2.6	2.1	0.1	0.1	0.1	0.2	0.01			
Whole ... ..	100.0	76.3	0.9	0.5	1.7	20.6	0.03	91.7	26.0	415.9

## FRESH VEGETABLES.

CALCULATION OF ANALYTICAL DATA SHOWING FIGURES FOR EDIBLE PART, WHOLE VEGETABLE AND ALLOWANCE FOR WASTE—continued.  
 (B).—*Tubers and Roots*—continued.

—	Per-centage Amount.	Water.	Ash.	Fibre.	Protein.	Carbo-hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Potatoes, Boiled, New—</i>										
Tuber	95.8	74.4	0.8	0.4	1.3	18.9	0.01	82.9	23.5	376.0
Skin	7.9	2.8	0.1	0.1	0.2	1.0	0.01			
Whole	100.0	77.2	0.9	0.5	1.5	19.9	0.02	87.9	24.9	398.7
<i>Potatoes, Raw, Old—</i>										
Tuber	92.1	70.1	1.3	0.7	1.9	18.1	0.03	82.3	23.3	373.3
Skin	7.9	6.0	0.4	0.4	0.2	0.9	0.02			
Whole	100.0	76.1	1.7	1.1	2.1	19.0	0.05	87.0	24.7	394.6
<i>Potatoes, Boiled, Old—</i>										
Tuber	92.0	74.1	0.9	0.6	1.8	14.7	0.02	67.8	19.2	307.5
Skin	8.0	6.1	0.2	0.2	0.2	1.3	0.02			
Whole	100.0	80.2	1.1	0.8	2.0	16.0	0.04	74.2	21.0	336.6



<i>Beetroot—</i>	...	62.1	56.0	0.8	0.6	0.7	3.8	0.06	19.0	5.4	86.2
Edible part root	...	37.6	33.9	0.8	0.4	0.7	1.7	0.07			
Leaf ...	...	0.3	—	—	—	—	—	—			
Rootlets ...	...										
Whole plant ...	...	100.0	89.9	1.6	1.0	1.4	5.5	0.13	29.5	8.4	133.8
<i>Carrot (2)—</i>											
Root ...	...	80.0	67.8	0.9	1.1	1.2	9.0	0.08	42.6	12.1	193.2
Leaf ...	...	20.0	16.0	0.6	0.5	0.5	2.4	0.06			
Whole plant ...	...	100.0	83.8	1.5	1.6	1.7	11.4	0.14	55.0	15.6	249.5
<i>Kohlrabi—</i>											
Edible part root	...	76.7	70.1	0.9	0.5	1.7	3.4	0.02	21.1	6.0	95.7
Scrapings ...	...	23.3	19.7	0.4	0.4	0.8	1.8	0.02			
Whole root ...	...	100.0	89.8	1.3	0.9	2.5	5.2	0.04	31.9	9.1	144.7
Root from above	...	59.6	53.5	0.8	0.5	1.5	3.1	0.02			
Leaf and stalk ...	...	40.4	34.4	1.2	0.8	1.0	2.8	0.2			
Whole plant ...	...	100.0	87.9	2.0	1.3	2.5	5.9	0.22	36.5	10.4	165.6
<i>Parsnip—</i>											
(1) Edible part root	...	86.8	63.0	0.9	2.6	1.5	18.3	0.4	84.9	24.1	385.1
Scrapings ...	...	13.2	10.0	0.4	0.6	0.2	2.0	0.03			
Whole root ...	...	100.0	73.0	1.3	3.2	1.7	20.3	0.43	94.2	26.7	427.3
(2) Whole root ...	...	—	76.8	1.0	1.4	1.9	18.4	0.5	87.9	24.9	398.7
Mean...	...	—	74.9	1.2	2.3	1.8	19.4	0.47	91.0	25.8	413.0

## FRESH VEGETABLES.

CALCULATION OF ANALYTICAL DATA SHOWING FIGURES FOR EDIBLE PART, WHOLE VEGETABLE AND ALLOWANCE FOR WASTE—continued.  
 (B).—*Tubers and Roots*—continued.

—	Per- centage Amount.	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate.	Fat.	Energy Value.—Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Parsnip</i> —										
Root (1) above ...	64.7	47.2	0.8	2.1	1.1	13.1	0.3			
Leaf ...	35.3	29.1	1.1	0.9	0.6	3.6	0.1			
Whole Plant ...	100.0	76.3	1.9	3.0	1.7	16.7	0.4	79.2	22.4	359.2
<i>Radish</i> —										
Edible part root ...	45.5	42.6	0.4	0.5	0.5	1.5	0.05	8.7	2.5	39.5
Leaf ...	51.5	46.6	1.1	1.3	1.3	1.1	0.05			
Rootlets ...	3.0	—	—	—	—	—	—			
Whole plant ...	100.0	89.2	1.5	1.8	1.8	2.6	0.1	19.0	5.4	86.2
Edible part root ...	27.8	26.3	0.2	0.2	0.2	0.9	0.01	4.6	1.3	20.9
Leaf and rootlets ...	72.2	65.6	1.7	1.0	1.7	1.9	0.30			
Whole plant ...	100.0	91.9	1.9	1.2	1.9	2.8	0.31	22.1	6.3	100.2

*Salsify—*

Edible part root	...	87.4	66.8	1.0	1.4	2.4	15.6	0.09	74.6	21.2	338.4
Scrappings	...	12.6	9.6	0.5	0.4	0.3	1.6	0.16			
Whole root	...	100.0	76.4	1.5	1.8	2.7	17.2	0.25	83.9	23.8	380.6
Whole root above	...	54.2	41.4	0.8	1.0	1.5	9.3	0.13			
Leaf	...	45.8	38.8	1.1	0.9	1.1	3.5	0.32			
Whole plant	...	100.0	80.2	1.9	1.9	2.6	12.8	0.45	67.3	19.1	305.3

*Scorzonera—*

Edible part root	...	80.0	58.2	0.7	1.8	3.1	15.9	0.16	79.4	22.5	360.2
Scrappings	...	20.0	13.3	0.7	0.6	0.5	4.7	0.16			
Whole root	...	100.0	71.5	1.4	2.4	3.6	20.6	0.32	102.2	29.0	463.6

*Swede—*

Edible part root	...	84.5	75.0	0.5	1.2	0.8	6.8	0.08	31.9	9.0	144.7
Scrappings	...	15.5	13.2	0.3	0.3	0.4	1.3	0.02			
Whole root	...	100.0	88.2	0.8	1.5	1.2	8.1	0.1	39.1	11.1	177.4
Whole root above	...	62.2	54.9	0.5	0.9	0.7	5.0	0.06			
Leaf	...	37.8	33.1	0.6	0.5	0.8	2.5	0.11			
Whole plant	...	100.0	88.0	1.1	1.4	1.5	7.5	0.17	38.5	10.9	174.6

## FRESH VEGETABLES.

CALCULATION OF ANALYTICAL DATA SHOWING FIGURES FOR EDIBLE PART, WHOLE VEGETABLE AND ALLOWANCE FOR WASTE—continued.  
(B).—*Tubers and Roots*—continued.

—	Per- centage Amount	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate.	Fat.	Energy Value.—Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Turnip</i> —										
(1) Edible part root ...	87.4	81.3	0.6	0.5	1.1	3.8	0.09	20.9	5.9	94.8
Scrapings ...	12.6	11.1	0.3	0.2	0.3	0.6	0.01			
Whole root ...	100.0	92.4	0.9	0.7	1.4	4.4	0.1	24.7	7.0	112.0
(2) Leaf ...	39.6	35.0	0.1	0.7	0.9	1.9	0.08			
Whole root as above ...	60.4	55.8	0.5	0.4	0.8	2.7	0.06			
Whole plant ...	100.0	90.8	0.6	1.1	1.7	4.6	0.14	27.1	7.7	122.9
(C).— <i>Bulbs, etc.</i>										
<i>Garlic</i> —										
Skin ...	8.2	1.2	0.5	2.5	0.2	3.8	0.06			
Edible part ...	91.8	58.7	1.3	0.8	4.3	26.6	0.09	127.5	36.2	578.3
Whole ...	100.0	59.9	1.8	3.3	4.5	30.4	0.15	144.5	41.0	655.5

<i>Leek—</i>												
Edible part	...	43.6	37.2	0.5	0.7	1.1	4.1	0.04	21.7	6.2	98.4	
Leaf	...	55.6	49.4	1.0	0.9	1.0	3.1	0.11				
Rootlets	...	0.8	0.4	0.1	0.1	0.1	0.2	0.00				
Whole plant	...	100.0	87.0	1.6	1.7	2.2	7.4	0.15	40.8	11.6	185.1	
<i>Onions, English—</i>												
Skin	...	4.5	2.8	0.4	0.5	0.07	0.8	0.02				
Inside edible part	...	95.5	82.8	0.5	0.6	1.23	10.3	0.10	48.2	13.7	218.6	
Whole	...	100.0	85.6	0.9	1.1	1.3	11.1	0.12	52.0	14.7	235.9	
<i>Onions, Spanish—</i>												
Skin	...	2.0	1.0	0.1	0.3	0.01	0.6	0.02				
Inside edible part	...	98.0	92.3	0.4	0.7	0.59	4.0	0.04	19.2	5.4	87.1	
Whole	...	100.0	93.3	0.5	1.0	0.6	4.6	0.06	21.9	6.2	99.3	

(D).—*Flowers and Fruits.*

<i>Artichoke, Green—</i>												
"Fond"	...	13.4	11.5	0.2	0.2	0.5	1.0	0.01	6.2	1.8	28.1	
Edible part leaf	...	18.6	14.6	0.2	0.8	0.4	2.6	0.00	12.3	3.5	55.8	
Waste leaf	...	68.0	56.2	0.9	4.2	1.6	5.0	0.00	—	—	—	
Whole	...	100.0	82.3	1.3	5.2	2.5	8.6	0.01	45.6	12.9	206.8	

# FRESH VEGETABLES.

CALCULATION OF ANALYTICAL DATA SHOWING FIGURES FOR EDIBLE PART, WHOLE VEGETABLE AND ALLOWANCE FOR WASTE—continued.  
(D).—*Flowers and Fruits*—continued.

	Per- centage Amount	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Cauliflower</i> —										
Flower and edible leaf ...	52.2	47.1	0.5	0.5	1.0	3.1	0.1	17.7	5.0	80.3
Waste leaf and stalk ...	47.8	42.7	0.5	0.8	0.5	3.2	0.05	—	—	—
Whole ...	100.0	89.8	1.0	1.3	1.5	6.3	0.15	33.4	9.5	151.5
<i>Cucumber</i> —										
Edible part ...	82.6	79.9	0.3	0.2	0.5	1.6	0.07	9.3	2.6	42.2
Skin ...	17.4	16.5	0.2	0.1	0.1	0.4	0.03	—	—	—
Whole ...	100.0	96.4	0.5	0.3	0.6	2.0	0.1	11.6	3.3	52.6
<i>Marrow, Green</i> —										
Edible part ...	67.4	62.7	0.3	0.4	0.3	3.5	0.03	15.9	4.5	72.1
Seed part ...	17.4	16.0	0.1	0.1	0.2	0.9	0.02	—	—	—
Skin ...	15.2	13.5	0.1	0.4	0.2	0.9	0.03	—	—	—
Whole ...	100.0	92.2	0.5	0.9	0.7	5.3	0.08	25.3	7.2	114.8

*Marrow, Yellow—*

Edible part	...	55.4	53.6	0.2	0.2	0.1	1.2	0.03	5.6	1.6	25.4
Seed part	...	25.0	23.2	0.2	0.2	0.3	1.1	0.04			
Skin	...	19.6	18.7	0.1	0.2	0.1	0.6	0.03			
Whole	...	100.0	95.5	0.5	0.6	0.5	2.9	0.10	14.9	4.2	67.6

*(E).—Stems.*

<i>Asparagus—</i>											
Edible part	...	42.8	38.9	0.4	0.4	1.3	1.8	0.02	12.9	3.6	58.5
Stalk	...	57.2	51.8	0.5	1.1	1.0	2.7	0.05			
Whole	...	100.0	90.7	0.9	1.5	2.3	4.5	0.07	28.5	8.1	129.3
<i>Celery—</i>											
Stalk, edible part	...	88.5	82.9	0.9	0.7	0.5	3.4	0.09	16.8	4.8	76.2
Leaf	...	11.5	10.3	0.2	0.1	0.2	0.7	0.01			
Whole	...	100.0	93.2	1.1	0.8	0.7	4.1	0.10	20.6	5.8	93.4
<i>Rhubarb—</i>											
Edible part stalk	...	82.1	77.5	0.6	0.5	0.5	3.0	0.06	14.9	4.2	67.6
Leaf	...	17.9	16.4	0.2	0.1	0.3	0.9	0.01			
Whole	...	100.0	93.7	0.8	0.6	0.8	3.9	0.07	19.9	5.6	90.3

FRESH VEGETABLES.  
 CALCULATION OF ANALYTICAL DATA SHOWING FIGURES FOR EDIBLE PART, WHOLE VEGETABLE AND ALLOWANCE FOR WASTE—continued.  
 (E).—Stems—continued.

—	Per- centage Amount	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
<i>Seakale</i> —										
Edible part	77.1	72.0	0.4	0.6	1.2	2.9	0.02	17.0	4.8	77.1
Root, &c.	22.9	20.3	0.2	0.3	0.5	1.5	0.02			
Whole	100.0	92.3	0.6	0.9	1.7	4.4	0.04	25.4	7.2	115.2
<i>Mushroom</i> —										
Flesh	79.4	72.5	0.9	0.7	3.6	1.6	0.16	22.8	6.5	103.9
Stalk	12.0	10.9	0.1	0.1	0.5	0.3	0.01	3.4	1.0	15.4
Skin	8.6	7.3	0.1	0.1	0.6	0.4	0.02			
Whole	100.0	90.7	1.1	0.9	4.7	2.3	0.19	30.6	8.7	138.8

(F).—Leaves (as Salads).

<i>Batavia</i> —										
Edible inside leaves	54.0	50.3	0.5	0.6	0.8	1.8	0.05	11.1	3.1	50.3
Outside leaves and stalk	42.3	39.3	0.7	0.3	0.3	1.6	0.04			
Root	3.7	—	—	—	—	—	—			
Whole	100.0	89.6	1.2	0.9	1.1	3.4	0.09	19.3	5.5	87.5



<i>Corn Salad—</i>													
Edible leaf	...	...	...	96.1	88.6	1.6	1.1	1.7	2.9	0.2			
Root	...	...	...	3.9	—	—	—	—	—	—			
Whole	...	...	...	100.0	88.6	1.6	1.1	1.7	2.9	0.2	20.7	5.9	93.9
<i>Endive—</i>													
Edible inside leaves	...	...	...	73.6	68.7	0.8	0.6	1.3	2.1	0.07	14.6	4.1	66.2
Outside leaves and stalk	...	...	...	26.4	24.3	0.6	0.4	0.4	0.7	0.03			
Whole	...	...	...	100.0	93.0	1.4	1.0	1.7	2.8	0.10	19.4	5.5	88.0
<i>Lettuce—</i>													
Edible inside leaves	...	...	...	63.5	60.6	0.5	0.4	0.7	1.2	0.13	9.0	2.6	40.8
Outside leaves and stalk	...	...	...	36.5	34.6	0.5	0.3	0.3	0.8	0.07			
Whole	...	...	...	100.0	95.2	1.0	0.7	1.0	2.0	0.20	14.2	4.0	64.4
<i>Parsley—</i>													
Leaf	...	...	...	72.2	56.9	2.1	1.6	2.7	8.4	0.51	50.3	14.3	228.2
Stalk	...	...	...	27.8	22.4	0.8	0.8	0.4	3.3	0.08			
Whole	...	...	...	100.0	79.3	2.9	2.4	3.1	11.7	0.59	66.2	18.8	300.3
<i>Watercress—</i>													
Leaf	...	...	...	50.0	46.3	0.5	0.3	0.7	2.1	0.2	13.3	3.8	60.3
Stalk	...	...	...	50.0	47.7	0.4	0.3	0.6	0.9	0.1			
Whole	...	...	...	100.0	94.0	0.9	0.6	1.3	3.0	0.3	20.4	5.8	92.5

FRESH VEGETABLES.  
 CALCULATION OF ANALYTICAL DATA SHOWING FIGURES FOR EDIBLE PART, WHOLE VEGETABLE AND ALLOWANCE FOR WASTE.—*continued.*  
 (G).—*Leaves.*

—	Per- centage Amount	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								10 gm.	1 oz.	1 lb.
<i>Brussels Sprouts—</i>										
Edible inside leaves	...	76.8	0.8	0.8	2.8	4.4	0.15	30.9	8.8	140.2
Outside leaves	...	23.2	0.4	0.4	0.8	1.4	0.05			
Whole ...	...	100.0	1.2	1.2	3.6	5.8	0.20	40.4	11.5	183.2
<i>Cabbage—</i>										
Edible inside leaves	...	48.4	0.4	0.5	0.7	3.9	0.05	19.3	5.5	87.5
Outside leaves and stalk	...	51.6	0.7	0.8	0.6	4.8	0.10			
Whole ...	...	100.0	1.1	1.3	1.3	8.7	0.15	42.4	12.0	192.3
<i>Cabbage, Red—</i>										
Edible inside leaves	...	57.4	0.6	0.5	1.3	3.7	0.06	21.1	6.0	95.7
Outside leaves	...	42.6	0.8	0.8	1.2	3.4	0.09			
Whole	...	100.0	1.4	1.3	2.5	7.1	0.15	40.8	11.6	185.1



## DRIED LEGUMES OR PULSES.

An almost complete set of dried beans, lentils and peas, as well as the flour prepared from them was obtainable on the market during the summer of 1919.

A sample of Soya beans was also analysed.

There is a considerable variation in the chemical analyses of the varieties of dried beans, especially in the protein content, but the calorie value is about the same.

In the case of peas, the split variety is of higher calorie value than the whole pea. Further, the flour has a still higher calorie value.

Soya beans have a very high fat and protein content, and, in consequence of the large amount of fat, have a distinctly higher calorie value.

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## CEREALS AND CEREAL PRODUCTS.

With the exception of pearl barley, buckwheat flour, Force and a few other special cereal products, an almost complete set of cereals (whole grain and milled grain) were obtainable on the market during the summer of 1919.

Messrs. Hovis, Ltd., have kindly supplied various wheat samples. They form an interesting series. Middlings and semolina closely resemble wheat flour. Further analyses of wheat flour are given later.

The two analyses of rye flour are rather different. Sample (1) was a fresh sample.

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## FLOUR.

In addition to the analyses of flour under cereals and cereal products, several other analyses have been carried out.

The analytical data do not differ to any great extent, though the samples had a slightly different outward appearance.

The differences make little alteration to the energy value. Flour containing germ will be of more value in health preservation than pure wheaten flour. The germ-containing flour has the anti-neuritic vitamin. Rye flour as usually milled contains the germ.

DRIED LEGUMES, PULSES.  
ANALYTICAL DATA.

	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate by Diff.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
Peas—									
Whole, green	13.8	2.7	5.4	20.4	57.1	0.6	323.3	91.7	1,466.5
Split, "	11.1	2.7	0.9	22.1	62.4	0.8	353.9	100.3	1,605.3
" yellow	12.6	2.4	1.0	20.3	63.0	0.7	348.0	98.7	1,578.5
Pea flour	8.7	2.7	1.1	21.9	64.2	1.4	366.0	103.8	1,660.2
Maple peas, whole	13.8	3.2	4.9	18.9	58.5	0.7	323.8	91.8	1,468.8
Lentil—									
Flour	9.9	3.1	1.2	21.4	63.5	0.9	356.5	101.1	1,617.1
Whole, brown	12.2	2.3	3.1	22.2	59.7	0.5	340.4	96.5	1,544.0
Split, red	12.3	2.1	1.2	20.1	63.9	0.4	348.1	98.7	1,579.0
" " Russian "	10.7	2.1	2.2	21.4	63.0	0.6	351.6	99.7	1,594.9
Beans—									
Butter	11.2	4.0	3.3	18.6	62.2	0.7	337.8	95.8	1,532.3
Haricot, small	11.1	3.5	2.6	17.8	64.5	0.5	342.1	97.0	1,551.8
" large	12.2	4.4	3.7	16.7	61.3	1.7	335.6	95.1	1,522.3
Brown and white	12.0	3.5	2.3	19.2	61.7	1.3	343.8	97.5	1,559.5
Light brown	11.2	3.4	2.0	19.2	63.2	1.0	347.1	98.4	1,574.4
Small dark brown	11.6	3.6	2.4	18.9	62.5	1.0	343.0	97.2	1,555.8
Scarlet runner	13.3	3.7	2.9	15.2	62.8	2.1	339.3	96.2	1,539.1
Red (French dwarf)	12.3	3.7	2.3	20.6	60.0	1.1	340.7	96.6	1,545.4
Black	12.1	3.5	2.6	16.4	64.0	1.4	342.7	97.1	1,554.5
Broad	13.3	3.5	3.5	23.9	54.5	1.3	333.5	94.5	1,512.8
Soya	7.2	4.5	3.8	33.7	32.5*	18.3	441.6	125.2	2,003.1

\* Sucrose = 7.9 of this quantity.

CEREALS.  
ANALYTICAL DATA.

—	Water.	Ash.	Fibre.	Protein.	Fat.	Carbo- hydrate by Diff.	Energy Value. Calories per—		
							100 gm,	1 oz.	1 lb.
Barley—									
Grain	13.7	2.4	3.4	10.4	1.2	68.9	336.3	95.3	1,525.5
Meal...	9.1	4.0	5.8	10.6	4.2	66.3	354.4	100.5	1,607.6
Flour	11.0	3.2	1.5	10.7	4.1	69.5	367.0	104.0	1,664.7
Pot	10.5	1.1	0.7	7.0	0.8	79.9	363.7	103.1	1,649.7
" Kernel "	10.5	1.4	0.9	8.0	1.8	77.8	364.8	103.4	1,654.7
Buckwheat grain	12.6	2.2	8.9	12.1	1.9	62.3	322.7	91.5	1,463.8
Maize—									
Grain	10.6	1.4	1.4	9.9	4.2	72.5	376.9	106.8	1,709.6
Meal...	9.6	0.7	0.3	9.9	2.1	77.4	377.5	107.0	1,712.3
Hominy	11.2	0.4	0.4	7.0	0.5	80.5	363.4	103.0	1,648.4
Cornflour	11.4	0.1	0.0	0.8	0.1	87.6	363.4	103.0	1,648.4
Millet grain, Japanese	10.5	3.9	2.6	11.2	2.9	68.9	355.4	100.8	1,612.1
Oat—									
Grain	12.3	2.6	8.7	8.2	5.6	62.6	342.4	97.1	1,553.1
Groats	7.7	2.0	1.6	12.0	8.4	68.3	407.4	115.5	1,848.0
Coarse meal	7.0	1.8	0.8	12.3	8.2	69.9	413.3	117.2	1,874.7
Medium meal	6.9	1.8	0.8	11.9	8.6	70.0	415.8	117.9	1,886.1
Fine meal	8.2	1.8	0.7	11.7	8.3	69.3	409.3	116.0	1,856.6
Mean of groats and meals...	7.5	1.9	1.0	12.0	8.4	69.4	411.4	116.7	1,866.3



CEREAL PRODUCTS.  
ANALYTICAL DATA.

	Water.	Ash.	Fibre.	Protein.	Fat.	Carbo- hydrate by Diff.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
Grape Nuts ...	6.3	2.3	1.3	9.5	0.5	80.1*	372.0	105.5	1,687.4
Macaroni—									
Fancy shape ...	10.8	0.4	0.2	12.1	0.1	76.4	363.8	103.1	1,650.2
Stick ...	10.9	0.5	0.1	12.8	0.2	75.5	363.9	103.2	1,650.6
Spaghetti ...	10.8	0.5	0.1	10.9	0.3	77.4	364.8	103.4	1,654.7
Vermicelli ...	10.4	0.5	0.1	11.5	0.1	77.4	365.4	103.6	1,657.4
Pates d'Italie ...	10.5	0.4	0.1	11.3	0.4	77.3	367.0	104.0	1,664.7
Mean of above 5 ...	10.7	0.5	0.1	11.7	0.2	76.8	365.0	103.5	1,656.2
Fresh Italian ...	26.0	0.5	0.2	9.0	0.1	64.2	301.0	85.3	1,365.3
Arrowroot ...	13.2	0.1	0.03	0.2	0.03	86.44	355.5	100.8	1,612.6
Potato flour ...	12.9	0.2	0.03	0.3	0.04	86.53	356.4	101.0	1,616.6
Sago ...	11.9	0.1	0.07	0.2	0.02	87.71	360.6	102.2	1,635.7
Tapioca ...	11.9	0.1	0.01	0.2	0.05	87.74	361.0	102.3	1,637.5
" bullet ...	10.6	0.1	0.03	0.2	0.08	88.99	366.4	103.9	1,662.0
" seed... ..	10.1	0.1	0.01	0.2	0.02	89.57	368.2	104.4	1,670.0
Mean of six ...	11.8	0.1	0.03	0.2	0.04	87.83	361.4	102.4	1,639.1

\* 20.6 per cent. of this quantity is reducing sugar calculated as maltose.



FLOUR.  
ANALYTICAL DATA.

Source.	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate by Diff.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
Colchester, 24.6.16 ...	12.6	0.5	—	12.1	73.7	1.1	352.0	102.6	1,642
Woolwich, 9.6.17 ...	12.1	1.5	1.0	11.4	71.8	2.2	351.6	102.5	1,640
Devonport, 21.6.17 ...	11.5	0.8	0.5	10.3	75.2	1.7	355.4	104.0	1,662
Deptford (1) 5.7.17 ...	10.8	0.6	0.1	11.5	75.5	1.5	370.6	105.0	1,681
(2) 5.7.17 ...	11.3	0.8	0.4	9.3	76.8	1.4	356.0	103.7	1,660
(3) 5.7.17 ...	11.2	0.8	0.5	9.5	76.5	1.5	356.6	103.9	1,663
(4) 5.7.17 ...	11.0	0.8	0.4	9.3	77.0	1.5	367.8	104.2	1,667
"Baxendall," 10.8.17 ...	11.6	0.9	0.7	9.5	75.6	1.7	354.7	104.4	1,654
10.8.17 ...	10.7	0.8	1.6	9.5	75.8	1.6	354.6	104.4	1,654
10.8.17 ...	10.9	0.9	1.7	9.1	75.8	1.6	353.0	103.0	1,647
10.8.17 ...	10.5	0.8	0.5	9.4	76.8	2.0	372.0	105.4	1,687
Mean ...	11.3	0.8	0.7	10.1	75.5	1.6	355.9	103.9	1,660
1918 ...	12.1	1.0	0.8	10.1	74.1	1.9	352.9	102.9	1,646
1914 ...	11.3	0.5	0.1	9.6	77.7	0.8	355.4	103.6	1,657

## BREAD.

Most of the samples of bread procured for analysis were made from "war" flour and baked during March, April, May, 1918. They were obtained from various sources and consisted of samples of :

White bread (V.V. bread differs in appearance in containing large pieces of husk).	
„ with a percentage of rye flour.	
„ „ „ potato flour.	
Brown bread.	

The analysis of a sample of white bread purchased in August, 1917, is of interest for comparison. Also a sample baked with a remainder of 1914 flour.

Some analyses of bread baked during 1911-1914 have been kindly supplied by Mr. C. H. Cribb, B.Sc., F.I.C., and Major Stanley Elliott, O.B.E., B.Sc., F.I.C. They do not materially differ from these analyses. Two samples of bread baked in Aberdeen in 1920 show similar analytical data to the other samples, except in the amount of fat. The high fat content is no doubt due to the practice of adding milk to the dough. No marked difference is noticeable in the various breads. The food value depends ultimately on the moisture content of the bread. The close correspondence is better shown in the calculations of the data "moisture free."

War bread differed from pre-war bread mainly in appearance and was not so fresh at the time of purchase. It had to be sold twenty-four hours after baking. Though not quite fresh at the time of purchase, it remained fresh and palatable for over twenty-four hours. Pre-war bread was generally stale in twenty-four hours.

Brown bread, on the average (excluding the Scotch samples), contained about 2 per cent. more moisture than white bread. The Scotch samples were quite fresh, and contained less water than the other samples, except one Army bread sample, which was stale.

Preference should be given to brown bread or other breads containing the germ of the wheat. The anti-neuritic factor is present in the germ; this is also supplied by the yeast used in baking. From the health standard white highly-milled flour baked with baking powder is to be deprecated.

## BISCUITS.

Only samples of both kinds of Army biscuit were analysed.

## BREAD.

## ANALYTICAL DATA.

	Acidity c.c. N/10 per 100 gm.	Water.	Other Ash.	Sodium Chloride.	Fibre.	Protein.	Carbohydrate.		Fat.	Energy Value. Calories per—		
							Maltose.	Starch by Diff.		100 gm.	1 oz.	1 lb.
(A) <i>White.</i>												
Sample, 4.3.18 ...	19.2	42.8	0.9	0.9	—	6.6	3.5	45.2	0.1	227.6	64.5	1,032.4
5.3.18 ...	16.2	42.8	0.8	0.9	—	7.1	4.3	44.0	0.1	228.0	64.6	1,034.2
2.4.18 ...	34.1	45.1	1.2	0.9	0.5	7.2	2.7	42.3	0.1	214.9	60.9	974.8
4.4.18 ...	25.9	45.3	1.0	0.8	0.5	7.0	3.8	41.5	0.1	215.4	61.1	977.0
14.3.18 ...	23.8	41.0	0.9	0.8	0.7	7.3	5.0	44.2	0.1	232.5	65.9	1,054.6
18.3.18 ...	31.5	42.8	0.9	0.9	0.5	7.3	4.2	43.2	0.2	226.0	64.1	1,025.1
Army, 31.1.18 ...	—	36.3	0.9	1.2	0.3	7.0	3.9	50.2	0.2	252.4	71.6	1,144.9
16.3.18 ...	27.6	42.8	1.0	0.9	0.6	7.3	4.2	43.0	0.2	225.2	63.9	1,021.5
Sample, 14.3.18 ...	45.8	43.4	1.2	0.8	1.0	8.6	3.1	41.6	0.3	221.3	62.7	1,003.8
—8.17 ...	—	41.9	0.8	0.9	0.2	6.7	3.5	45.8	0.2	231.5	65.6	1,050.1
Sample from 1914 flour—1918 ...	6.5	45.1	0.6	0.7	0.1	6.3	2.9	44.2	0.1	219.9	62.3	997.5
Scotch sample, 1920	—	37.9	0.9	—	0.3	7.9	—	47.9	0.9	237.1	67.2	1,075.5
Mean ...	—	42.3	0.9	0.9	0.5	7.2	3.7	44.4	0.2	228.6	64.8	1,036.9
(B) <i>With Percentage of Rye Flour.</i>												
(1) 25 per cent., 10.4.18 ...	27.8	45.3	1.0	0.7	0.5	6.5	2.5	43.4	0.1	215.8	61.2	978.9
(2) ditto ...	25.5	43.1	0.9	1.2	0.5	6.5	4.1	43.6	0.1	223.1	63.2	1,012.0
Mean ...	—	44.2	0.9	0.9	0.5	6.5	3.3	43.5	0.1	219.4	62.2	995.5

BREAD.  
ANALYTICAL DATA—continued.

	Acidity c.c. N/10 per 100 gm.	Water.	Other Ash.	Sodium Chloride.	Fibre.	Protein.	Carbohydrate.		Fat.	Energy Value. Calories per—			
							Maltose.	Starch by Diff.		100 gm.	1 oz.	1 lb.	
<i>(C) With Percentage of Potato Flour.</i>													
(1) 11.6.18 ...	83.8	43.6	1.0	0.9	0.4	7.0	3.0	44.0	0.1	222.3	63.0	1,008.3	
(2) 13 per cent., 19.6.18 ...	31.0	43.1	1.0	1.0	0.5	7.2	3.2	43.9	0.1	223.6	63.4	1,014.2	
Mean ...	—	43.3	1.0	0.9	0.5	7.1	3.1	44.0	0.1	222.9	63.2	1,011.2	
<i>(D) Brown.</i>													
Sample, 9.3.18 ...	28.7	44.0	0.8	1.0	0.8	7.5	3.5	42.3	0.1	219.5	62.2	995.6	
4.4.18 ...	26.5	48.3	1.3	1.4	0.8	6.4	3.6	38.1	0.1	198.1	56.3	898.6	
9.3.18 ...	74.6	47.0	0.9	0.9	0.6	7.1	4.6	38.7	0.2	208.5	59.1	945.8	
Scotch sample, 1920	—	35.8	2.1	—	0.5	7.3	—	53.1	1.2	258.8	73.3	1,173.9	
Sample, 9.3.18 ...	56.4	40.9	1.3	0.9	0.8	6.9	11.6	37.2	0.4	231.1	65.5	1,048.3	
Mean ...	—	43.2	1.3	1.0	0.7	7.0	5.8	41.9	0.4	223.2	63.3	1,012.4	
Mean of all ...	—	43.2	1.0	0.9	0.5	7.0	4.0	43.4	0.2	223.5	63.4	1,014.0	

## BREAD.

## ANALYSES OF WHITE BREAD (1911-1914).

By C. H. Cribb, B.Sc., F.I.C., and Stanley Elliott, B.Sc., F.I.C.

—	Acidity c.c. N/10 per 100 gm.	Water.	Ash.	Protein.	Carbo- hydrate by Diff.	Fat.
	34.4	43.4	1.1	7.2	47.7	0.6
	41.1	42.9	1.2	6.5	48.5	0.9
	34.4	41.6	1.0	7.3	49.7	0.4
	26.6	43.4	1.0	7.3	47.6	0.7
	48.9	44.3	1.5	6.8	46.8	0.6
	32.2	44.5	0.9	6.8	47.2	0.5
	24.4	40.5	0.8	6.8	50.7	1.2
Mean	34.6	42.9	1.1	7.0	48.3	0.7

## ANALYSES CALCULATED MOISTURE FREE.

—	Ash and Sodium Chloride.	Fibre.	Protein.	Carbo- hydrate.	Fat.
Sample, 4.3.18 ...	3.2	—	11.5	85.1	0.2
5.3.18 ...	3.0	—	12.4	84.4	0.2
2.4.18 ...	3.8	1.00	13.1	82.0	0.2
4.4.18 ...	3.3	0.9	12.8	82.8	0.2
14.3.18 ...	2.9	1.2	12.4	83.4	0.2
18.3.18 ...	3.2	0.9	12.8	82.9	0.4
Army, 31.1.18 ...	3.3	0.5	11.0	84.9	0.3
16.3.18 ...	3.3	1.1	12.8	82.5	0.4
Sample, 14.3.18 ...	3.5	1.8	15.2	79.0	0.5
-8.17 ...	2.9	0.3	11.5	84.9	0.3
1914 flour, 1918	2.4	0.3	11.5	86.0	0.1
Scotch sample, 1920 ...	1.4	0.5	12.7	77.1	1.4
With rye ...	3.7	0.9	11.4	83.8	0.2
25 per cent....	3.1	0.9	11.9	83.9	0.2
With potato ...	3.4	0.7	12.4	83.3	0.2
13 per cent....	3.5	0.9	12.7	82.8	0.2
Mean ...	3.1	0.7	12.4	83.1	0.3
Sample, 9.3.18 ...	3.2	1.4	13.4	81.8	0.2
4.4.18 ...	5.2	1.5	12.4	80.7	0.2
9.3.18 ...	3.4	1.13	13.4	81.7	0.4
Scotch sample ...	3.3	0.8	11.4	82.7	1.9
Sample, 9.3.18 ...	3.7	1.3	11.7	82.6	0.7
Mean ...	3.8	1.2	12.5	81.9	0.7

## BREAD,

ANALYTICAL DATA OF CRIBB AND ELLIOTT. CALCULATED MOISTURE  
FREE.

---	Ash and Sodium Chloride.	Protein.	Carbohydrate and Fibre.	Fat.
	1·9	12·7	84·3	1·1
	2·1	11·4	84·9	1·6
	1·7	12·5	85·1	0·7
	1·8	12·9	84·1	1·2
	2·7	12·2	84·0	1·1
	1·6	12·2	85·0	0·9
	1·3	11·4	85·2	2·0
Mean	1·9	12·2	84·7	1·2

## BISCUITS

## ANALYTICAL DATA.

	Water.	Ash.	Sodium Chloride.	Fibre.	Protein.	Carbohydrate.		Fat.	Energy Value. Calories per—		
						Cane Sugar.	Starch by Diff.		100 gm.	1 oz.	1 lb.
Button	...	7.2	1.5	0.3	13.1	5.8	69.4	1.2	373.2	105.8	1,692.8
Square	...	8.3	1.4	0.8	11.9	5.9	70.4	0.3	364.4	103.3	1,652.9
Mean	...	7.7	1.5	0.6	12.5	5.9	69.9	0.7	368.8	104.6	1,672.8

## FRESH FRUITS.

With the exception of apricots, which were not obtainable on the market during 1919, an almost complete set of the common fresh fruits has been purchased for analysis. Other fruits not obtainable, during the course of the period taken for this purpose, were pomegranate, medlars and quinces. These are of minor importance, as they are not frequently eaten. Rhubarb is included under fresh vegetables. In the case of fresh fruits there is another small factor to be considered, namely, the very great variety of most kinds of fruit; this is most noticeable with apples, pears and plums. Several varieties of each have been procured. In some instances there is resemblance in calorie value, in other instances there is difference. This may depend mainly upon the state of ripeness of the fruit. The better quality fruit usually has a higher calorie value, partially on account of the fuller ripeness (hence more sugar) and partially on account of the smaller amount of waste.

Sugar is the chief calorie-giving constituent of fruit. Its amount has been determined directly in each case, and it is of interest to notice whether the sugar be "glucose,"\* or a mixture of "glucose" and sucrose. Generally speaking, glucose is the chief sugar of fruits; sucrose is not present in all fruits.

The acidity of the fruits has also been determined, but no food or calorie value has been calculated from this figure. Usually the acid of fruit is returned as malic acid. It is not proven that malic acid is the only acid present in fruits. Grapes undoubtedly contain tartaric acid, oranges and lemons contain citric acid. Other acids have also been isolated from fruits. The absence of this calculated figure may partially account for the "undetermined matter" which is present in the majority of the analyses. The "undetermined matter" may also be more water, as it is very difficult to remove all water from syrupy matter such as results on drying fruits. Pectin is another constituent of fruits which is included under "undetermined matter." Our knowledge of this substance is very limited, both as to its estimation and amount in fruits, and also as to its calorie value.

The data for calorie value are thus minimal figures, but they would not be largely increased if the undetermined matter were regarded as sugar.

Bananas are an exception in containing starch. The undetermined matter is here regarded as starch.

The various fruits, in so far as was necessary, were separated into their edible and inedible parts. The proportions of these parts were determined. Only the usual edible matter was analysed. Allowance can be made for the waste from the proportion of the inedible matter.

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\* *i.e.*, Sugar directly reducing Fehling's solution. Fructose is included in the term as now used.



## FRESH FRUITS.

## PROPORTION OF EDIBLE AND WASTE.

<i>Apples.</i>				<i>Blackberries.</i>			
		Gm.	Per-centage.			Gm.	Per-centage.
Charles Ross (1)—				Cultivated, Edible	—	—	100
Edible	...	212	93.4	Wild, Edible	...	—	100
Waste...	...	15	6.6				
Total	...	227	100.0				
Codling (cooking) (3)—				<i>Cherries.</i>			
Edible	...	516	93.3	Black—			
Waste...	...	37	6.7	Edible	...	384	87.3
Total	...	553	100.0	Waste	...	56	12.7
Cox's Orange				Total	...	440	100.0
Pippin (1)—				White—			
Edible	...	134	93.7	Edible	...	356	87.7
Waste...	...	9	6.3	Waste	...	50	12.3
Total	...	143	100.0	Total	...	406	100.0
Golden Nob (11)—				Cooking—			
Edible	...	432	89.4	Edible	...	376	87.4
Waste...	...	51	10.6	Waste	...	54	12.6
Total	...	483	100.0	Total	...	430	100.0
Pearmain (7)—				<i>Currants.</i>			
Edible	...	417	89.7	Black—			
Waste...	...	48	10.3	Edible	...	429	94.5
Total	...	465	100.0	Waste	...	25	5.5
Quarenden (7)—				Total	...	454	100.0
Edible	...	379	85.4	Red—			
Waste...	...	65	14.6	Edible	...	435	95.6
Total	...	444	100.0	Waste	...	20	4.4
<i>Bananas.</i>				Total	...	455	100.0
Canary (5)—				White—			
Edible	...	266	56.2	Edible	...	449	96.4
Waste...	...	207	43.8	Waste	...	17	3.6
Total	...	473	100.0	Total	...	466	100.0
Jamaica (5)—				<i>Damsons.</i>			
Edible	...	351	57.2	Edible	...	222	91.7
Waste...	...	263	42.8	Waste	...	20	8.3
Total	...	614	100.0	Total	...	242	100.0

Figures in brackets indicate number of apples. The larger the apple, the smaller the amount of waste. The skin is included as edible matter. Any bruised portion is included under waste.

## FRESH FRUITS.

PROPORTION OF EDIBLE AND WASTE—*continued.*

		Gm.	Per-centage.			Gm.	Per-centage.
<i>Figs.</i>				<i>Grapes.</i>			
English (5)—				Muscat (ordinary)—			
Edible ...	...	201	80·4	Edible ...	...	202	95·3
Waste ...	...	49	19·6	Waste ...	...	10	4·7
Total ...	...	250	100·0	Total ...	...	212	100·0
<i>Gooseberries.</i>				Spanish white—			
Cooking—				Edible ...	...	351	93·3
Edible ...	...	452	99·8	Waste ...	...	25	6·7
Waste ...	...	1	0·2	Total ...	...	376	100·0
Total ...	...	453	100·0	<i>Greengages.</i>			
Eating—				Edible ...	...	467	94·5
Edible ...	...	457·5	99·7	Waste ...	...	27	5·5
Waste ...	...	1·1	0·3	Total ...	...	494	100·0
Total ...	...	458·6	100·0	<i>Lemons.</i>			
<i>Grape Fruit (1).</i>				Edible ...	...	186	67·9
Edible ...	...	266	70·0	Waste ...	...	88	32·1
Waste ...	...	114	30·0	Total ...	...	274	100·0
Total ...	...	380	100·0	<i>Melons.</i>			
<i>Grapes.</i>				English—			
Alicante—				Edible ...	...	438	57·9
Edible ...	...	344	94·0	Waste ...	...	318	42·1
Waste ...	...	22	6·0	Total ...	...	756	100·0
Total ...	...	366	100·0	Canteloupe—			
Colmar—				Edible ...	...	587	45·2
Edible ...	...	254	95·1	Waste ...	...	713	54·8
Waste ...	...	13	4·9	Total ...	...	1,300	100·0
Total ...	...	267	100·0	Spanish—			
Hambro—				Edible ...	...	1,452	62·8
Edible ...	...	375	94·5	Waste ...	...	802	37·2
Waste ...	...	22	5·5	Total ...	...	2,314	100·0
Total ...	...	397	100·0	<i>Mulberries.</i>			
Muscat (1st quality)—				Edible ...	...	—	100
Edible ...	...	131	97·0				
Waste ...	...	4	3·0				
Total ...	...	135	100·0				

## FRESH FRUITS.

PROPORTION OF EDIBLE AND WASTE—*continued.*

<i>Nectarine (1).</i>				<i>Pears.</i>			
		Gm.	Per-centage.		Gm.	Per-centage.	
Edible ...	...	126	94.7	Eating (10) (Hazel)—			
Waste ...	...	7	5.3	Edible ...	418	87.2	
				Waste... ..	61	12.8	
Total ...	...	133	100.0	Total ...	479	100.0	
<i>Oranges.</i>				<i>Cooking (12)—</i>			
Californian (1)—				Edible ...	431	87.4	
Edible ...	...	149	76.0	Waste... ..	62	12.6	
Waste... ..	...	47	24.0	Total ...	493	100.0	
Total ...	...	196	100.0				
S. African (2)—				<i>Plums.</i>			
Edible ...	...	235	70.6	Yellow (cooking)—			
Waste... ..	...	98	29.4	Edible... ..	471	93.8	
Total ...	...	333	100.0	Waste... ..	31	6.2	
Tangier (6)—				Total ...	502	100.0	
Edible ...	...	234	78.0				
Waste... ..	...	66	22.0	Yellow red (10)—			
Total ...	...	300	100.0	“Victoria,”			
				eating—			
<i>Peaches (2),</i>				Edible ...	466	96.5	
Edible ...	...	187	93.0	Waste... ..	17	3.5	
Waste ...	...	14	17.0	Total ...	483	100.0	
Total ...	...	201	100.0				
<i>Pineapple.</i>				Red (eating) (3)—			
Edible ...	...	632	67.3	Pon Seedling—			
Waste ...	...	307	32.7	Edible ...	226	96.2	
Total ...	...	939	100.0	Waste... ..	9	3.8	
<i>Pears.</i>				Total ...	235	100.0	
Cooking (8) (small				Blue (cooking)—			
William)—				Edible... ..	434	93.7	
Edible ...	...	461	88.6	Waste... ..	29	6.3	
Waste... ..	...	59	11.4	Total ...	463	100.0	
Total ...	...	520	100.0				
Eating (5) (William)—				Blue red (10)—			
Edible ...	...	470	87.4	“Royal,”			
Waste... ..	...	68	12.6	eating—			
Total ...	...	538	100.0	Edible ...	424	94.4	
				Waste... ..	25	5.6	
				Total ...	449	100.0	

## FRESH FRUITS.

PROPORTION OF EDIBLE AND WASTE—*continued.*

		Gm.		Per-			Gm.	Per-
				centage.				
		<i>Pumpkin.</i>					<i>Strawberries.</i>	
Section—					Ordinary—			
Edible ...	...	304	66.5		Edible ...	...	440	93.4
Waste ...	...	153	33.5		Waste ...	...	31	6.6
Total	...	457	100.0		Total	...	471	100.0
		<i>Raspberries.</i>			Selected—			
With stalk—					Edible ...	...	484	96.7
Edible ...	...	346	91.5		Waste ...	...	16.5	3.3
Waste ...	...	32	38.5					
					Total	...	500.5	100.0
Total	...	378	100.0					
							<i>Whortleberries.</i>	
					Edible	...	—	100

## FRESH FRUITS.

## ANALYTICAL DATA.

	Acidity c.c. N/10 per 100 gm.	Water.	Ash.	Fibre.	Protein.	Fat.	Carbohydrate.		Un- deter- mined.	Energy Value. per—		Calories
							" Glu- cose."	Cane Sugar.		100 gm.	1 oz.	1 lb.
<i>Apples—</i>												
Charles Ross ...	128.4	86.8	0.3	0.8	0.3	0.2	6.3	3.4	1.9	42.9	12.2	194.6
Cox's Orange Pippin ...	133.7	83.6	0.4	0.7	0.3	0.2	6.8	5.7	2.3	54.3	15.4	246.3
Codling (cooking) ...	204.0	85.6	0.3	0.7	0.4	0.2	6.2	1.9	4.7	36.7	10.4	166.5
Golden Nob ...	89.1	85.8	0.3	0.8	0.2	0.2	7.8	3.7	1.2	49.8	14.1	225.9
Pearmain ...	100.5	84.7	0.4	1.1	0.2	0.2	8.6	1.5	3.3	44.1	12.5	200.0
Quarenden ...	75.8	85.1	0.2	0.7	0.2	0.2	10.4	2.3	0.9	54.7	15.5	248.1
Mean ...	121.9	85.3	0.3	0.8	0.3	0.2	7.7	3.1	2.4	47.1	13.3	213.6
<i>Bananas—</i>												
Canary ...	112.7	68.5	0.9	1.5	1.6	0.1	8.0	0.0	19.4*	119.8	34.0	543.4
Jamaica ...	60.5	73.1	0.8	2.9	0.7	0.1	17.0	0.7	4.7*	95.6	27.1	433.6
Mean ...	86.6	70.8	0.8	2.2	1.2	0.1	12.5	0.3	12.1*	107.7	30.5	488.5
<i>Blackberries—</i>												
Cultivated ...	51.2	85.4	0.5	4.0	1.2	0.2	7.7	0.0	1.0	38.3	10.9	173.7
Wild ...	107.3	82.3	0.8	4.8	1.4	0.2	6.3	0.0	4.2	33.4	9.5	151.5
Mean ...	79.3	83.8	0.7	4.4	1.3	0.2	7.0	0.0	2.6	35.8	10.2	162.4

\* Starch by difference.

## FRESH FRUITS.

ANALYTICAL DATA—continued.

	Acidity c.c. N/10 per 100 gm.	Water.	Ash.	Fibre.	Protein.	Fat.	Carbohydrate.		Un- deter- mined.	Energy Value. per—		Calories
							" Glu- cose."	Cane Sugar.		100 gm.	1 oz.	1 lb.
<i>Cherries—</i>												
Black ...	52.1	81.3	0.5	0.8	1.0	0.1	16.7	0.0	—	73.5	20.8	333.4
White ...	76.7	86.5	0.5	1.4	1.0	0.1	10.8	0.0	—	49.3	14.0	223.6
Cooking (Mayduke)	151.8	87.2	0.5	0.5	0.7	0.1	10.9	0.0	0.1	48.5	13.7	220.0
Mean	93.5	85.0	0.5	0.9	0.9	0.1	12.7	0.0	—	57.1	16.2	259.0
<i>Currents—</i>												
Black ...	466.0	80.8	0.9	2.4	1.3	0.2	8.0	0.0	6.4	40.0	11.3	181.4
Red ...	337.3	85.7	0.6	4.0	1.3	0.1	6.3	0.0	2.0	32.1	9.1	145.6
White ...	330.5	85.4	0.7	2.8	1.1	0.1	5.8	0.0	4.1	29.2	8.3	132.4
Mean	379.9	84.0	0.7	3.1	1.2	0.1	6.7	0.0	4.2	33.8	9.6	153.3
<i>Damsons</i> ...	352.3	83.8	0.6	0.4	0.4	0.2	7.7	0.1	6.8	35.5	10.1	161.0
<i>Figs</i> (English)	36.5	87.3	0.6	0.8	0.8	0.1	10.9	0.0	—	48.9	13.9	221.8
<i>Gooseberries—</i>												
Cooking...	359.0	89.7	0.4	1.9	0.7	0.1	5.0	0.1	2.1	24.7	7.0	112.0
Eating ...	223.2	88.9	0.4	1.2	0.7	0.1	6.4	0.4	1.9	31.7	9.0	143.8
Mean	291.1	89.3	0.4	1.6	0.7	0.1	5.7	0.3	2.0	28.2	8.0	127.9

<i>Grapes—</i>	...	113.4	83.7	0.4	1.3	0.8	0.1	15.2	0.0	—	66.5	18.8	301.6
Alicante	...	76.3	84.9	0.5	0.3	0.5	0.1	13.7	0.0	0.0	59.2	16.8	268.5
Colmar ...	...	77.3	81.3	0.5	0.4	0.6	0.1	17.4	0.0	—	74.7	21.2	338.8
Hambro	...	85.2	84.5	0.5	0.5	0.5	0.1	14.0	0.0	—	60.4	17.1	274.0
Muscate ...	...	84.4	84.5	0.5	0.7	0.6	0.1	13.5	0.0	0.1	58.7	16.6	266.3
Muscate (1st quality)	...	102.1	89.0	0.4	0.4	0.5	0.1	9.4	0.0	0.0	43.4	12.3	196.9
Spanish	...	...	...	...	...	...	...	...	...	...	...	...	...
Mean	...	93.1	84.7	0.5	0.6	0.6	0.1	13.9	0.0	0.0	60.4	17.1	274.0
<i>Grape Fruit</i>	...	135.0	91.9	0.3	0.5	0.6	0.1	4.3	1.4	0.9	26.8	7.6	121.6
<i>Greengages</i>	...	196.4	82.7	0.6	2.0	0.7	0.2	7.2	3.6	3.0	49.0	13.9	222.3
<i>Lemons</i> ...	...	826.9	91.1	0.3	0.4	0.5	0.5	2.9	0.2	4.1	19.4	5.5	88.0
<i>Melons—</i>	...	...	...	...	...	...	...	...	...	...	...	...	...
Cantaloupe	...	9.8	94.5	0.4	0.4	0.5	0.1	3.3	0.3	0.5	17.7	5.0	80.3
English	...	10.4	92.7	0.6	0.2	0.7	0.0	4.3	1.5	0.0	26.7	7.6	121.1
Spanish	...	10.5	93.5	0.4	0.4	0.3	0.1	4.0	0.3	1.0	19.8	5.6	89.8
Mean	...	10.2	93.6	0.5	0.3	0.5	0.1	3.9	0.7	0.5	21.4	6.1	97.1
<i>Mulberries</i>	...	301.8	86.8	0.8	1.1	1.5	0.4	7.8	0.0	1.6	41.9	11.9	190.1
<i>Nectarine</i>	...	88.4	87.9	0.5	0.1	0.8	0.1	1.6	7.4	1.6	41.1	11.6	186.4
<i>Oranges—</i>	...	...	...	...	...	...	...	...	...	...	...	...	...
Californian	...	127.7	86.0	0.5	0.4	0.9	0.1	5.7	3.8	2.6	43.6	12.4	197.8
South African	...	102.7	88.1	0.6	0.4	0.8	0.1	4.6	4.2	1.6	40.3	11.4	182.8
Tangier	...	129.2	86.8	0.4	0.5	0.6	0.1	3.5	4.6	3.5	36.6	10.4	166.0
Mean	...	119.9	87.0	0.5	0.4	0.8	0.1	4.6	4.2	2.6	40.2	11.4	182.2

FRESH FRUITS.  
ANALYTICAL DATA—continued.

	Acidity c.c. N/10 per 100 gm.	Water.	Ash.	Fibre.	Protein.	Fat.	Carbohydrate.		Un- deter- mined.	Energy Value. per—		Calories
							" Glu cose,"	Cane Sugar.		100 gm.	1 oz.	
<i>Peach</i> ... ..	97.2	89.5	0.6	0.5	0.8	0.1	2.4	2.3	3.8	23.5	6.7	106.6
<i>Pears</i> —												
Cooking (William)	32.1	84.5	0.4	2.4	0.5	0.1	7.1	0.3	4.7	33.3	9.4	151.0
" ... ..	58.9	83.1	0.3	2.0	0.3	0.1	7.4	0.6	6.2	35.0	9.9	158.8
Eating (Hazel)	35.5	81.9	0.4	2.0	0.2	0.1	9.5	0.5	5.4	42.8	12.1	194.1
" (William)	24.8	87.6	0.3	1.4	0.3	0.1	7.6	0.5	2.2	35.4	10.0	160.6
Mean ... ..	37.8	84.3	0.4	2.0	0.3	0.1	7.9	0.5	4.6	36.6	10.4	166.1
<i>Pineapple</i> ... ..	148.0	86.8	0.4	0.4	0.5	0.0	2.4	8.7	0.8	47.6	13.5	215.9
<i>Plums</i> —												
Cooking, Yellow	238.8	87.2	0.5	1.1	0.6	0.2	7.7	0.5	2.2	37.9	10.7	171.9
" Blue ...	196.0	89.1	0.4	1.0	0.5	0.3	4.6	2.8	1.3	35.2	10.0	159.7
Eating—												
Yellow (Victoria)	186.3	85.7	0.4	0.8	0.4	0.3	5.4	4.9	2.1	46.7	13.2	211.8
Blue Red (Royal)	356.1	85.5	0.4	0.7	0.5	0.3	3.9	1.8	6.9	27.4	7.7	123.3
Red (Pon Seeding)	332.4	85.9	0.4	0.5	0.3	0.2	3.1	6.2	3.4	41.2	11.7	186.9
Mean ... ..	261.9	86.7	0.4	0.8	0.5	0.3	4.9	3.2	3.2	37.7	10.7	171.0
<i>Pumpkin</i> (Section)	7.6	95.3	0.4	0.3	0.4	0.0	2.8	0.0	0.8	13.1	3.7	59.4
<i>Raspberries</i> ... ..	232.0	86.8	0.6	3.1	1.2	0.1	6.6	0.0	1.6	32.9	9.3	149.2
<i>Strauberies</i> —												
Ordinary	120.6	91.7	0.4	0.8	0.6	0.1	6.2	0.0	0.2	28.8	8.2	130.6
Selected	121.7	88.6	0.5	0.9	0.7	0.1	10.2	0.0	—	45.6	12.9	206.8
Mean ... ..	121.2	90.1	0.5	0.9	0.7	0.1	8.2	0.0	0.1	37.2	10.5	168.7
<i>Whortleberries</i> ... ..	116.0	85.4	0.3	1.8	0.7	0.2	11.5	0.8	—	55.2	15.6	250.4



ANALYTICAL DATA CALCULATED TO ALLOW FOR WASTE.

—	Waste.	Acidity.	Water.	Ash.	Fibre.	Protein.	Total Carbo- hydrate.	Fat.	Energy Value. Calories per—		
									100 gm.	1 oz.	1 lb.
<i>Apples—</i>											
Charles Ross ...	6.6	119.9	81.1	0.3	0.7	0.3	9.1	0.2	40.4	11.5	183.2
Cox's Orange Pippin ...	6.3	125.3	78.3	0.4	0.7	0.3	11.7	0.2	51.1	14.5	231.8
Codling (Cooking) ...	6.7	190.3	79.9	0.3	0.6	0.4	7.6	0.2	34.7	9.8	157.4
Golden Nob ...	10.6	79.6	76.7	0.3	0.7	0.2	10.3	0.2	44.9	12.7	203.7
Pearmain ...	10.3	90.2	76.0	0.4	1.0	0.2	9.1	0.2	40.0	11.3	181.4
Quarenden ...	14.6	64.7	72.7	0.2	0.6	0.2	10.9	0.2	47.4	13.4	215.0
Mean	9.2	111.7	77.5	0.3	0.7	0.3	9.8	0.2	43.2	12.2	195.9
<i>Banana—</i>											
Canary ...	43.8	63.3	38.5	0.5	0.8	0.9	15.4	0.1	67.8	19.2	307.5
Jamaica ...	42.8	34.6	41.8	0.5	1.7	0.4	12.8	0.1	55.0	15.6	249.5
Mean	43.3	48.9	40.2	0.5	1.2	0.6	14.1	0.1	61.4	17.4	278.5
<i>Cherries—</i>											
Black ...	12.7	45.5	70.9	0.4	0.7	0.9	14.6	0.1	64.5	18.3	292.6
White ...	12.3	67.3	75.9	0.4	1.2	0.9	9.5	0.1	43.7	12.4	198.2
Cooking (Mayduke) ...	12.6	132.7	76.2	0.4	0.4	0.6	9.5	0.1	42.3	12.0	191.9
Mean	12.5	81.6	74.3	0.4	0.8	0.8	11.2	0.1	50.1	14.2	227.2



<i>Grape Fruit</i> ...	...	30.0	94.5	64.3	0.2	0.4	0.4	0.4	4.0	0.1	19.0	5.4	86.2
<i>Greengages</i> ...	...	5.5	185.6	78.1	0.6	1.0	0.7	10.2	0.2	46.6	13.2	211.4	
<i>Lemons</i> ...	...	32.1	561.5	29.2	0.1	0.1	0.2	1.0	0.2	6.8	1.9	30.8	
<i>Melons—</i>													
<i>Canteloupe</i>	...	54.8	4.4	42.7	0.2	0.2	0.2	1.6	0.0	7.4	2.1	33.6	
<i>English</i> ...	...	42.1	6.0	53.7	0.3	0.1	0.4	3.4	0.0	15.6	4.4	70.8	
<i>Spanish</i> ...	...	37.2	6.6	58.7	0.2	0.2	0.2	2.7	0.1	12.8	3.6	58.1	
Mean	...	44.7	5.7	51.7	0.2	0.2	0.3	2.6	0.0	11.9	3.4	54.2	
<i>Nectarines</i> ...	...	5.3	83.7	83.2	0.5	0.1	0.8	8.5	0.1	39.1	11.1	177.4	
<i>Oranges—</i>													
<i>Californian</i>	...	24.0	97.0	65.4	0.4	0.3	0.7	7.2	0.1	33.3	9.4	151.0	
<i>South African</i>	...	29.4	72.5	62.2	0.4	0.3	0.6	6.2	0.1	28.8	8.2	130.6	
<i>Tangier</i> ...	...	22.0	100.8	67.7	0.3	0.4	0.5	6.3	0.1	28.8	8.2	130.6	
Mean	...	25.1	90.1	65.1	0.4	0.3	0.6	6.6	0.1	30.3	8.6	137.4	
<i>Peach...</i>	...	7.0	90.4	83.2	0.6	0.5	0.7	4.4	0.1	21.8	6.2	98.9	
<i>Pears—</i>													
<i>Cooking (William)</i>	...	11.4	28.4	74.9	0.3	2.1	0.4	6.6	0.1	29.6	8.4	134.3	
" ...	...	12.6	51.5	72.6	0.3	1.8	0.3	7.1	0.1	31.3	8.9	142.0	
<i>Eating (Hazel)</i>	...	12.8	31.0	71.4	0.4	1.7	0.2	8.7	0.1	37.4	10.6	169.6	
" (William)	...	12.6	21.7	76.6	0.3	1.2	0.3	7.1	0.1	31.3	8.9	142.0	
Mean	...	12.3	33.2	73.9	0.3	1.7	0.3	7.4	0.1	32.4	9.2	147.0	
<i>Pineapple</i> ...	...	32.7	99.6	58.4	0.3	0.3	0.3	7.5	0.0	32.0	9.1	145.1	

## FRESH FRUITS.

ANALYTICAL DATA CALCULATED TO ALLOW FOR WASTE—continued.

—	Waste.	Acidity.	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—			
									100 gm.	1 oz.	1 lb.	
<i>Plums—</i>												
Cooking, Yellow ...	6.2	224.0	81.8	0.5	1.0	0.6	7.7	0.2	35.9	10.2	162.8	
" Blue ...	6.3	183.6	83.5	0.4	0.9	0.5	6.9	0.3	33.1	9.4	150.1	
Eating, Yellow (Victoria)	3.5	179.8	82.7	0.4	0.8	0.4	9.9	0.3	45.0	12.8	204.1	
" Blue-Red (Royal)	5.6	336.2	80.7	0.4	0.7	0.5	5.4	0.3	27.0	7.6	122.5	
" Red (Pon Seeding)	3.8	319.8	82.6	0.4	0.5	0.3	9.0	0.2	40.0	11.3	181.4	
Mean	5.1	248.7	82.3	0.4	0.8	0.5	7.8	0.3	36.2	10.3	164.2	
<i>Pumpkin</i> ...												
"	33.5	5.0	63.4	0.3	0.2	0.3	1.9	0.0	9.0	2.6	40.8	
<i>Raspberries</i> ...												
"	8.5	212.3	79.4	0.5	2.8	1.1	6.0	0.1	30.0	8.5	136.1	
<i>Strawberries—</i>												
Ordinary ...	6.6	112.6	85.6	0.4	0.7	0.6	5.8	0.1	27.2	7.7	123.4	
Selected ...	3.3	117.7	85.7	0.5	0.9	0.7	9.9	0.1	44.4	12.6	201.4	
Mean	5.0	115.2	85.6	0.5	0.8	0.7	7.9	0.1	35.8	10.2	162.4	

## DRIED FRUITS.

A very complete set of dried fruits was obtainable on the market, but there was no possible differentiation into "selected" and ordinary varieties—except in the case of dates, where two varieties have been purchased. Real sultanas were obtained, but a small raisin is sometimes sold as sultana.

In the case of dried fruits, the whole fruit as purchased is generally eaten, except in the cases of dates and prunes. Here the stone was separated, and its percentage ascertained.

In all cases there is a considerable amount of undetermined matter. This is probably water, as it is practically impossible to drive off water by heating from sticky substances containing "glucose."

The undetermined matter has been assumed to be starch in the case of banana, as it is well known that this fruit contains starch in its fresh state.

It is curious that currants and prunes contain approximately 20 per cent. less "glucose" than the other dried fruits. They have a very high amount of undetermined matter. Further chemical examination will be necessary to ascertain the composition of this undetermined matter.

## PROPORTIONS OF PARTS.

<i>Dates (1).</i>				<i>Prunes.</i>			
		Gm.	Per-centage.			Gm.	Per-centage.
Edible	...	204	85	Edible	...	207	83.8
Stone	...	36	15	Stone	...	40	16.2
		<hr/>	<hr/>			<hr/>	<hr/>
		240	100			247	100.0
		<hr/>	<hr/>			<hr/>	<hr/>
<i>Dates (2).</i>							
Edible	...	65	89				
Stone	...	8	11				
		<hr/>	<hr/>				
		73	100				
		<hr/>	<hr/>				

DRIED FRUITS.  
ANALYTICAL DATA.

	Acidity c.c. N/10 per 100 gm.	Water.	Ash.	Fibre.	Protein.	Fat.	Carbohydrate.		Un- deter- mined.	Energy Value. Calories per—	
							" Glu- cose."	Cane Sugar.		100 gm.	1 oz. 1 lb.
Apple rings	...	25.1	1.1	2.6	0.9	0.6	49.4	9.3	11.0	249.9	70.8 1,133.5
Apricots	...	27.9	3.3	2.6	5.5	0.3	23.9	25.7	10.8	228.7	64.8 1,037.4
Bananas	...	21.4	2.5	3.4	2.5	0.2	61.2	2.2	*6.6	299.1	84.8 1,156.7
Currants	...	20.5	2.6	2.3	1.7	0.3	42.0	0.0	30.6	182.0	51.6 825.6
Dates	...	21.8	2.0	2.3	1.6	0.1	69.7	0.0	2.5	293.3	83.2 1,330.4
" less 15 per cent. for stone	...	18.5	1.7	2.0	1.4	0.1	59.2	0.0	2.1	249.4	70.7 1,131.3
" Turban	...	19.3	2.0	1.8	1.6	0.2	66.8	0.0	8.3	282.3	80.0 1,280.5
" less 11 per cent. for stone	...	17.2	1.8	1.6	1.4	0.2	59.4	0.0	7.4	251.1	71.2 1,139.0
Figs	...	20.8	2.3	4.2	2.0	0.5	53.2	3.3	3.7	244.5	69.3 1,109.0
Peel, candied	...	22.0	1.3	2.3	0.3	0.1	38.1	28.7	7.2	276.0	78.2 1,251.9
Prunes	...	28.1	1.9	1.8	3.0	0.3	40.4	0.0	24.5	180.7	51.2 819.6
" less 16.2 per cent. for stone	...	23.5	1.6	1.5	2.5	0.2	33.9	0.0	20.5	151.1	42.8 685.4
Raisins	...	19.3	2.5	4.1	2.2	0.3	61.2	0.0	10.4	262.7	74.5 1,191.6
Sultanas	...	18.5	2.3	1.1	1.7	0.3	64.9	0.0	11.2	275.9	78.2 1,251.5

## JAM, HONEY, ETC.

Twelve varieties of jam by different makers were procured ; most were of 1917 manufacture, but some were made in 1918.

The commercial jams have on the average about 69 per cent. of sugar.

A comparison with home-made jam, in which less than the usual amount of sugar was used in preparation, is interesting.

Jam has approximately the same sugar content as honey.

The sugar has been estimated in terms of reducing sugar as glucose and cane sugar ; in most cases the amount of reducing sugar exceeds that of glucose. It is accounted for by the action of the acid fruit juices upon the cane sugar, producing hydrolysis.

The undetermined matter may be organic acids, or possibly more water, for it is difficult to remove all water from syrups.

JAM, HONEY, ETC.  
ANALYTICAL DATA.

	Water.	Ash.	Fibre.	Protein.	Carbohydrate.		Un- deter- mined.	Energy Value. Calories per—		
					Reducing Hexose as Glucose.	Cane Sugar.		100 gm.	1 oz.	1 lb.
Damson (1)	26.2	0.33	0.70	0.3	56.3	13.7	2.47	288.2	81.7	1,307.3
" (2)	23.7	0.42	0.76	0.3	50.9	18.8	5.12	287.0	81.4	1,301.8
Gooseberry and Apple	26.2	1.41	1.14	0.2	69.0	2.1	—	292.3	82.9	1,325.9
Plum and Apple	27.9	0.23	0.72	0.2	27.2	42.3	1.45	285.8	81.0	1,296.4
Strawberry	29.3	0.28	1.37	0.3	47.4	19.0	2.35	273.5	77.5	1,240.6
Peach ...	26.6	0.20	0.60	0.2	33.4	39.1	—	298.1	84.5	1,352.2
Pear ...	24.0	0.20	0.60	0.2	23.0	46.7	5.30	286.6	81.2	1,300.0
Plum ...	24.0	0.85	0.63	0.2	39.6	30.4	4.32	287.8	81.6	1,305.5
Rhubarb	32.6	0.45	1.50	0.5	45.7	19.9	—	271.0	76.8	1,229.3
Scotch Marmalade	28.5	0.17	1.07	0.1	30.7	37.4	2.06	279.6	79.3	1,268.3
Marmalade (1) ...	27.9	0.17	0.68	0.2	67.0	1.6	2.45	282.1	80.0	1,280.4
" (2) ...	21.7	0.22	2.24	0.3	36.6	35.3	2.64	296.0	83.9	1,342.7
Mean ...	26.6	0.40	1.00	0.3	43.9	25.5	2.30	285.8	81.0	1,296.4
Home-made Gooseberry	40.2	0.70	3.50	0.9	55.3	0.0	—	230.4	65.3	1,045.1
Golden Syrup ...	15.1	0.90	0.0	0.3	44.5	31.9	7.30	314.5	89.2	1,426.6
Honey ...	18.3	0.30	0.10	0.4	69.2	2.2	9.50	294.4	80.6	1,290.0
Treacle ...	23.4	4.20	—	0.2	19.1	40.8	12.30	246.4	69.9	1,117.7



## NUTS.

Nuts are in some cases sold in shell and in some cases without shell. In those cases in which they are sold complete, the shell has been removed, and the proportion of shell and kernel ascertained.

There is considerable variation in the analytical data, but a fair mean figure is obtained if the chestnut and coconut milk are excluded.

The value of the whole nut, as purchased, is calculated by multiplying the analytical data by the percentage amount of the edible matter in the whole nut.

## PROPORTIONS OF SHELL AND KERNEL IN COMPLETE NUT.

30 Almonds.				1 Coconut.			
		Gm.	Per-centage.			Gm.	Per-centage.
Kernel	...	44.5	29.7	Flesh	...	369	51.3
Shell	...	105.5	70.3	Milk	...	145	20.1
				Shell	...	206	28.6
Total	...	150.0	100.0	Total	...	720	100.0
24 Brazils.				100 Peanuts.			
Kernel	...	126	53.2	Kernel	...	62.0	69.3
Shell	...	111	46.8	Shell	...	27.5	30.7
Total	...	237	100.0	Total	...	89.5	100.0
26 Chestnuts.				24 Walnuts, dried.			
Kernel	...	165	85.5	Kernel	...	94	45.0
Shell	...	28	14.5	Shell	...	115	55.0
Total	...	193	100.0	Total	...	209	100.0
63 Cobs or Filberts.				19 Walnuts, fresh.			
Kernel	...	85.5	40.5	Kernel	...	82	40.6
Shell	...	125.5	59.5	Shell	...	120	59.4
Total	...	211.0	100.0	Total	...	202	100.0

NUTS.  
ANALYTICAL DATA OF EDIBLE PARTS.

	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate, by Diff.	Fat.	Energy Value. Calories per—		
							100 gm.	1 oz.	1 lb.
Almond—									
Jordan	4.2	3.2	2.9	22.0	15.5	52.2	639.2	181.2	2,899.4
Valencia	3.6	3.1	3.1	18.6	15.2	56.4	663.1	188.0	3,007.8
In shell	3.1	3.0	3.6	15.7	17.4	57.2	667.7	189.3	3,028.7
Mean	3.6	3.1	3.2	18.8	16.0	55.3	656.7	186.2	2,978.6
Brazil ..	2.9	3.3	2.1	13.2	8.1	70.4	742.1	210.4	3,366.2
Chestnut	44.3	0.9	1.7	3.0	48.2	1.9	227.6	64.5	1,932.4
Coconut—									
Flesh	37.3	0.8	1.5	4.2	7.7	48.5	499.8	141.8	2,267.1
Milk...	92.6	0.6	—	0.2	5.2	—	22.1	6.3	100.3
Cob or filbert	11.2	2.7	2.4	14.3	17.8	51.6	611.5	173.4	2,773.8
Hazel ..	3.7	2.7	2.9	13.2	14.3	63.2	700.5	198.6	3,177.5
Peanut...	4.1	2.5	3.6	20.1	22.1	47.6	615.7	174.6	2,792.8
Pine kernels	4.4	4.0	1.6	31.4	10.6	48.0	618.6	175.4	2,866.0
Walnuts—									
Dried	2.2	2.0	1.8	13.6	14.0	66.4	730.7	207.1	3,314.5
In shell	3.0	2.3	1.3	20.7	13.8	58.9	689.2	195.4	3,126.2
Fresh	11.4	1.8	1.1	15.8	11.1	58.8	657.1	186.3	2,980.6
Mean (excluding chestnut and coconut milk)	8.4	2.5	2.2	16.5	13.6	56.9	652.6	185.0	2,960.2

ANALYTICAL DATA CALCULATED FOR WHOLE NUT AS PURCHASED.

—	Per- centage of Edible Matter.	Water.	Ash.	Fibre.	Protein.	Carbo- hydrate.	Fat.	Energy Value. Calories per—		
								100 gm.	1 oz.	1 lb.
Almond in shell ...	29.7	0.9	0.9	1.1	4.7	5.2	17.0	198.7	56.3	901.3
Brazil ...	53.2	1.5	1.8	1.1	7.0	4.3	37.4	394.2	111.8	1,788.1
Chestnut ...	85.5	37.9	0.8	1.4	2.6	41.2	1.6	194.5	55.1	882.3
Coconut—										
Flesh ...	51.3	19.1	0.4	0.8	2.1	3.9	24.9	256.2	72.6	1,162.1
Milk ...	20.1	18.6	0.1	—	0.0	1.0	—	4.1	1.2	18.6
Whole interior ...	71.4	37.7	0.5	0.8	2.1	4.9	24.9	260.3	73.8	1,180.7
Cob or filbert ...	40.5	4.5	1.1	1.0	5.8	7.2	20.9	247.7	70.2	1,123.6
Peanut ...	69.3	2.8	1.7	2.5	13.9	15.3	33.0	426.6	120.9	1,935.1
Walnuts—										
Dried, in shell ...	45.0	1.4	1.0	0.6	9.3	6.2	26.5	310.0	87.9	1,406.2
Fresh, in shell ...	40.6	4.6	0.7	0.4	6.4	4.5	23.9	267.0	75.7	1,211.1

## CHOCOLATE, COCOA AND SUGAR.

The analyses of chocolate and cocoa do not show so much variation as might have been expected. Eleven samples of chocolate and six of cocoa have been analysed. The mean value is a very fair figure.

Brown sugar is impure, whereas white sugar is a very pure foodstuff. Five varieties of white sugar all contain approximately 100 per cent. of sucrose.

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CHOCOLATE.  
ANALYTICAL DATA.

Sample No.	—	Water.	Ash.	Fibre.	Protein.	Carbohydrate.		Fat.	Energy Value. Calories per—		
						Cane Sugar.	Starch by Diff.		100 gm.	1 oz.	1 lb.
1	...	1.0	1.2	1.1	4.5	59.4	0.4	32.4	565.0	160.2	2,562.8
2	...	1.1	1.5	2.1	4.2	57.3	8.2	25.6	523.9	148.5	2,376.4
3	...	0.6	1.2	1.4	4.7	52.1	9.3	30.7	556.5	157.8	2,524.3
4	...	1.0	1.4	1.6	5.2	42.6	10.1	38.1	591.7	167.7	2,683.9
5	...	0.8	1.2	1.4	4.4	61.9	4.0	26.3	532.8	151.1	2,416.8
6	...	0.8	1.2	1.3	4.6	49.8	8.8	33.5	570.7	161.8	2,588.7
7	...	1.4	1.2	3.9	3.3	52.2	9.1	28.9	533.6	151.3	2,420.4
8	...	1.1	1.6	0.7	6.0	46.0	11.5	33.1	568.2	161.1	2,577.4
9	...	1.5	2.2	3.5	7.1	42.0	8.2	35.5	565.1	160.2	2,563.3
10	...	1.1	1.2	1.6	4.0	28.2	36.4	27.5	537.0	152.2	2,435.8
11	...	1.2	1.4	1.4	4.3	54.7	6.1	30.9	554.3	157.1	2,514.3
Mean	...	1.0	1.4	1.8	4.8	49.7	10.2	31.1	554.4	157.2	2,514.8

# COCOA.

## ANALYTICAL DATA.

Sample No. 1	Water.	Ash.	Fibre.	Protein.	Carbohydrate.		Fat.	Energy Value. Calories per—		
					Cane Sugar.	Starch by Diff.		100 gm.	1 oz.	1 lb.
...	5.3	7.5	3.6	17.8	—	38.6	27.2	484.2	134.8	2,196.3
...	5.4	4.9	4.2	16.8	—	40.9	27.8	495.1	140.4	2,245.8
...	5.1	5.4	3.8	17.7	—	40.8	27.2	492.8	139.7	2,235.3
...	4.7	4.8	3.4	19.3	—	42.6	25.2	488.2	138.4	2,214.5
...	3.5	7.9	3.9	19.1	—	39.9	25.7	480.9	136.3	2,181.4
...	5.6	7.1	3.3	17.7	—	38.7	27.6	487.9	138.3	2,213.1
Mean	4.9	6.3	3.7	18.1	—	40.3	26.8	488.2	138.4	2,214.5

# SUGAR.

Brown (Demerara)	...	0.1	—	—	98.0	—	—	401.8	113.9	1,822.6
Candy sugar	...	—	—	—	100.0	—	—	410.0	116.2	1,859.8
Castor	...	—	—	—	100.0	—	—	410.0	116.2	1,859.8
Granulated...	...	—	—	—	100.0	—	—	410.0	116.2	1,859.8
Hard icing...	...	—	—	—	100.0	—	—	410.0	116.2	1,859.8
Lump	...	—	—	—	100.0	—	—	410.0	116.2	1,859.8

## SUMMARY OF ANALYSES FOR ARMY USE AND INDEX.

	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo- hydrate.		Protein.	Fat.	Carbo- hydrate.		
<i>Bacon—</i>	Gm.	Gm.	Gm.	Calories.	Gm.	Gm.	Gm.	Calories.	67-71
Back ... ..	9.1	59.9	—	5,944	41.3	271.7	—	2,696	
Gammon, whole ... ..	11.7	44.6	—	4,628	53.1	202.3	—	2,099	
Shoulder, whole ... ..	7.9	57.6	—	5,681	35.8	261.3	—	2,577	
Streaky, whole ... ..	10.3	54.2	—	5,463	46.7	245.8	—	2,478	
Whole side ... ..	9.5	54.6	—	5,467	43.1	247.7	—	2,480	
Whole side less 3.7 per cent. for skin ...	9.1	52.6	—	5,365	41.3	238.6	—	2,388	
<i>Biscuit—</i>									195
Army Button ... ..	13.1	1.2	75.2	3,732	59.4	5.4	341.1	1,693	
„ Square ... ..	11.9	0.3	76.3	3,644	54.0	1.4	346.1	1,653	
Mean ... ..	12.5	0.7	75.8	3,688	56.7	3.4	343.6	1,673	
<i>Bread—</i>									190-194
Brown—Mean of 5 varieties ... ..	7.0	0.4	47.7	2,232	31.8	1.8	216.4	1,012	
White—Mean of 12 samples ... ..	7.2	0.2	48.1	2,286	32.7	0.9	218.2	1,037	
Mean of 21 breads ... ..	7.0	0.2	47.4	2,235	31.8	0.9	215.0	1,014	

## SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

		Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
		Protein.	Fat.	Carbo- hydrate.		Protein.	Fat.	Carbo- hydrate.		
<i>Butter—</i>	Mean of 2 varieties	Gm.	Gm.	Gm.	Calories.	Gm.	Gm.	Gm.	Calories.	86-87
		0.2	83.0	—	7,722	0.9	376.5	—	3,503	
<i>Cereals—</i>	Barley—									184-189, 186
		Grain	10.4	68.9	3,363	47.2	5.4	312.5	1,526	
		Meal	10.6	66.3	3,544	48.1	19.0	300.7	1,608	
		Flour	10.7	69.5	3,670	48.5	18.6	315.2	1,665	
		Pot	7.0	0.8	3,637	31.7	3.6	362.4	1,650	
		" Kernel "	8.0	77.8	3,648	36.3	6.3	352.9	1,655	
		Buckwheat grain	12.1	62.3	3,227	54.9	8.6	282.6	1,464	
<i>Maize—</i>	Grain	9.9	4.2	72.5	3,769	44.9	19.0	328.9	1,710	186
		Meal	9.9	77.4	3,775	44.9	9.5	351.1	1,712	
		Hominy	7.0	80.5	3,634	31.7	2.3	365.1	1,648	
		Cornflour...	0.8	0.1	3,634	3.6	0.4	397.3	1,648	
			11.2	68.9	3,554	50.8	13.1	313.5	1,612	
		Millet grain, Japanese	...	...	...	...	...	...	...	



186									
Oats—									
Grain ...	8.2	5.6	62.6	3,424	37.2	25.4	283.9	1,553	
Groats ...	12.0	8.4	68.3	4,074	54.4	38.1	309.8	1,848	
Coarse meal ...	12.3	8.2	69.9	4,133	55.8	37.2	317.1	1,875	
Medium meal ...	11.9	8.6	70.0	4,158	54.0	39.0	317.5	1,886	
Fine meal ...	11.7	8.3	69.3	4,093	53.1	37.6	314.3	1,857	
Mean of groats and meal ...	12.0	8.4	69.4	4,114	54.4	38.1	314.8	1,866	
187									
Oats—									
Rollod (1)	12.9	6.3	69.0	3,944	58.5	28.6	313.0	1,789	
" (2)	13.3	6.7	69.9	4,034	60.3	30.4	317.1	1,830	
Mean of rolled oats...	13.1	6.5	69.5	3,989	59.4	29.5	315.2	1,809	
187									
Rice—									
Unpolished ...	6.8	0.6	80.0	3,615	30.8	2.7	362.9	1,640	
Polished, Indian	5.9	0.4	80.3	3,571	26.8	1.8	364.2	1,620	
Ground ...	6.4	0.3	81.6	3,636	29.0	1.4	370.1	1,649	
Flaked ...	6.1	0.3	81.7	3,628	27.7	1.4	370.6	1,646	
Mixed sample ...	6.7	0.4	81.1	3,637	30.4	1.8	367.9	1,650	
Honduras ...	7.2	0.4	80.0	3,612	32.7	1.8	362.9	1,638	
Mean ...	6.5	0.4	80.8	3,617	29.5	1.8	266.5	1,640	

SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	Per cent.				Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo- hydrate.			Protein.	Fat.	Carbo- hydrate.		
<i>Cereals—</i>										
Rye—										184-189 187
Grain	6.6	1.2	77.3		3,552	29.9	5.4	350.6	1,611	
Flour (1)	6.1	0.8	81.7		3,674	27.7	3.6	370.6	1,667	
" (2)	7.5	1.4	80.6		3,742	34.0	6.3	365.6	1,697	
"										
Mean of rye flour	6.8	1.1	81.1		3,708	30.8	5.0	367.9	1,682	
<i>Wheat—</i>										187
Grain	10.9	1.2	70.4		3,445	49.4	5.4	319.3	1,563	
Flour (1)	11.1	1.3	76.1		3,716	50.3	5.9	345.2	1,686	
" (2)	12.7	1.4	74.0		3,685	57.6	6.3	335.7	1,672	
" (3)	14.0	2.3	69.4		3,633	63.5	10.4	314.8	1,648	
Bran (1)	13.7	2.4	57.9		3,159	62.1	10.9	262.6	1,433	
" (2)	14.1	3.9	57.8		3,311	64.0	17.7	262.2	1,511	
Offal	15.3	5.0	58.2		3,479	69.4	22.7	264.0	1,578	
Middlings	12.4	1.1	73.9		3,641	56.3	5.0	335.2	1,652	
Germ	24.3	7.5	51.1		3,789	110.2	34.0	231.8	1,719	
Semolina	11.4	1.1	75.3		3,657	51.7	5.0	341.6	1,659	
Meal	11.7	2.0	71.9		3,614	53.1	9.1	326.1	1,639	
Shredded...	9.8	1.1	77.7		3,690	44.4	5.0	352.4	1,674	

## Cereal Products, etc.—

188

Arrowroot ...	...	0.2	0.03	88.44	3,555	0.9	0.1	392.1	1,613
Grape Nuts ...	...	9.5	0.5	80.1	3,720	43.1	2.3	363.3	1,687
Macaroni—	...	...	...	...	...	...	...	...	...
Fancy shape ...	...	12.1	0.1	76.4	3,638	54.9	0.4	346.5	1,650
Stick ...	...	12.8	0.2	75.5	3,639	58.1	0.9	342.5	1,651
Spaghetti ...	...	10.9	0.3	77.4	3,648	49.4	1.4	351.1	1,655
Vermicelli ...	...	11.5	0.1	77.4	3,654	52.2	0.4	351.1	1,657
Pates d'Italie ...	...	11.3	0.4	77.3	3,670	51.3	1.8	350.6	1,665
Mean of above 5	...	11.7	0.2	76.8	3,650	53.1	0.9	348.4	1,656

Fresh Italian	...	9.0	0.1	64.2	3,010	40.8	0.4	291.2	1,365
Potato flour	...	0.3	0.04	86.53	3,564	1.4	0.2	392.5	1,617
Sago...	...	0.2	0.02	87.71	3,606	0.9	0.1	397.8	1,636
Tapioca	...	0.2	0.05	87.74	3,610	0.9	0.2	398.0	1,638
" Bullet	...	0.2	0.08	88.99	3,664	0.9	0.4	403.7	1,662
" Seed	...	0.2	0.02	89.57	3,682	0.9	0.1	496.3	1,670

## Cheese—

84-85

Hard, full milk—Mean of varieties	...	25.7	35.0	Undeter- mined.	4,434	116.6	158.8	14.1	2,011
Hard, skim milk ...	...	32.2	11.6	3.1	2,786	146.1	52.6	42.6	1,260
Stilton (hard and cream)...	...	26.3	42.8	9.4	5,161	119.3	194.1	11.3	2,341
Extra hard (Parmesan) ...	...	33.7	34.9	2.5	4,808	152.9	158.3	20.0	2,181
Soft—Mean of 3 varieties	...	22.1	30.3	4.4	3,851	100.2	137.4	14.1	1,747

SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo- hydrate.		Protein.	Fat.	Carbo- hydrate.		
<i>Chocolate</i> —	Gm.	Gm.	Gm.	Calories.	Gm.	Gm.	Gm.	Calories.	
Mean of 11 varieties ... ..	4.8	31.1	59.9	5,544	21.8	141.1	271.7	2,515	217
<i>Cocoa</i> —									
Mean of 6 varieties ... ..	18.1	26.8	40.3	4,882	82.1	121.6	182.8	2,215	218
<i>Dripping</i> ... ..	—	100.0	—	9,300	—	—	—	4,219	87
<i>Eggs</i> —									
Dried—Mean of 6 varieties ... ..	40.3	39.6	9.5	5,727	182.8	179.6	43.1	2,598	75-81
Fresh, Hen's with shell ... ..	11.1	10.1	1.4	1,453	50.3	45.8	6.3	659	
„ Duck's with shell... ..	10.9	13.8	1.5	1,795	49.4	62.6	6.8	814	
<i>Fish</i> —									
Bass—									
Including skin ... ..	12.6	1.8	0.1	688	57.2	8.2	0.4	312	125-156
Excluding skin ... ..	11.2	1.5	0.1	599	50.8	6.8	0.4	272	145
Bream—									
Including skin ... ..	7.6	0.6	—	367	34.5	2.7	—	167	145

Brill—	...	13.5	1.8	—	721	61.2	8.2	—	327	149
Including skin ...	...	11.6	1.5	—	615	52.6	6.8	—	279	155
Excluding skin ...	...	...	...	...	...	...	...	...	...	...
Cockles, salted—	...	...	...	...	...	...	...	...	...	...
Unwashed	...	13.2	0.4	7.0	863	59.9	1.8	31.8	392	146
Codling—	...	...	...	...	...	...	...	...	...	...
Including skin ...	...	11.3	0.1	—	473	51.3	0.4	—	215	...
Excluding skin ...	...	9.8	0.1	—	411	44.4	0.4	—	186	147
Cod, section—	...	...	...	...	...	...	...	...	...	...
Including skin ...	...	15.7	0.1	—	653	71.2	0.4	—	296	...
Excluding skin ...	...	14.6	0.1	—	608	66.2	0.4	—	276	149
Conger Eel—	...	...	...	...	...	...	...	...	...	...
Including skin ...	...	15.3	0.1	—	637	69.4	0.4	—	289	...
Excluding skin ...	...	12.5	0.1	—	522	56.7	0.4	—	237	...
Crab—	...	...	...	...	...	...	...	...	...	...
Flesh only	...	22.4	0.2	1.1	982	101.6	0.9	5.0	445	137
Edible matter only	...	19.1	2.8	2.4	1,142	86.6	12.7	10.9	518	...
Edible matter less waste	...	7.8	1.1	1.0	463	35.4	5.0	4.5	210	156
Dab—	...	...	...	...	...	...	...	...	...	149
Including skin ...	...	13.8	1.1	—	668	62.6	5.0	—	303	...
Excluding skin ...	...	11.7	0.7	—	545	53.1	3.2	—	247	142
Dogfish—	...	...	...	...	...	...	...	...	...	...
Including skin ...	...	11.9	11.9	—	1,595	54.0	54.0	—	724	...
Excluding skin ...	...	10.1	11.7	—	1,502	45.8	53.1	—	681	...
Excluding skin and liver	...	9.7	2.8	—	658	44.0	12.7	—	299	153
Eel—	...	...	...	...	...	...	...	...	...	...
Excluding skin ...	...	8.7	15.1	—	1,761	39.5	68.5	—	799	150
Flounder—	...	...	...	...	...	...	...	...	...	...
Including skin ...	...	10.2	0.2	—	437	46.3	0.9	—	198	...
Excluding skin ...	...	7.8	0.1	—	329	35.4	0.4	—	149	...



(b) Female—	Including skin	...	...	...	15.9	9.1	—	1,498	72.1	41.3	—	679
	Excluding skin	...	...	...	14.9	8.3	—	1,383	67.6	37.7	—	627
	Mean including skin	...	...	...	16.2	9.8	—	1,575	73.5	44.4	—	715
	Mean excluding skin	...	...	...	15.3	9.0	—	1,460	69.4	40.8	—	662
Herring, fresh—												
(a) Yearling—												
(b) Male—	Including skin	...	...	...	12.1	11.0	—	1,514	54.9	49.9	—	687
	Excluding skin	...	...	...	16.2	8.5	—	1,455	73.5	38.6	—	660
(c) Female—	Including skin	...	...	...	15.3	11.7	—	1,715	69.4	53.1	—	778
	Excluding skin	...	...	...	14.0	10.4	—	1,541	63.5	47.2	—	699
Mean of (a), (b), (c) including skin												
Mean of (b), (c) including skin ...												
Mean of (b), (c) excluding skin ...												
Herring, kipper—												
Including skin ...	Including skin	...	...	...	15.6	14.4	—	1,979	70.8	65.3	—	898
	Excluding skin	...	...	...	14.1	11.1	—	1,610	64.0	50.4	—	730

SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo- hydrate.		Protein.	Fat.	Carbo- hydrate.		
<i>Fish</i> —continued—	Gm.	Gm.	Gm.	Calories.	Gm.	Gm.	Gm.	Calories.	139
Herrings, salted—									
(a) Male—									
Including skin	23.1	19.3	—	2,842	104.8	87.5	—	1,289	
Excluding skin	21.2	15.4	—	2,301	96.2	69.9	—	1,044	
(b) Female—									
Including skin	25.3	12.9	—	2,237	114.8	58.5	—	1,015	
Excluding skin	23.1	9.8	—	1,859	104.8	44.4	—	843	
Mean including skin	24.2	16.1	—	2,489	109.8	73.0	—	1,129	
Mean excluding skin	22.2	12.6	—	2,080	100.7	57.2	—	944	
John Dory—									151
Including skin	9.3	0.7	—	446	42.2	3.2	—	202	
Excluding skin	8.3	0.6	—	396	37.7	2.7	—	180	
Ling—									148
Including skin	15.5	0.4	—	673	70.3	1.8	—	305	
Excluding skin	13.6	0.4	—	595	61.7	1.8	—	270	
Lobster—									137
Flesh only	19.7	0.3	1.9	914	89.4	1.4	8.6	415	
Edible matter only	19.2	1.5	2.0	1,009	87.1	6.8	9.1	458	
Edible matter less waste	11.3	0.9	1.5	609	51.3	4.1	6.8	276	156



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SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo- hydrate.		Protein.	Fat.	Carbo- hydrate.		
<i>Fish</i> —continued—									
Salmon section—									
Including skin ..	16.3	12.9	—	Calories.	Gm.	Gm.	Gm.	Calories.	143
Excluding skin ..	14.7	12.5	—	1,868	73.9	58.5	—	847	
Scallops—				1,765	66.7	56.7	—	801	
Edible matter only ..	17.5	0.5	1.7	834	79.4	2.3	7.7	378	137
Edible matter less shell and internal waste ..	3.1	0.1	0.3	149	14.2	0.4	1.4	68	155
Shrimps—									
Flesh only ..	23.2	0.9	1.4	1,092	105.2	4.1	6.4	495	137
Edible matter less waste ..	10.9	0.4	0.7	513	49.4	1.8	3.2	233	156
Smelts—									
Including skin ..	11.3	1.6	—	612	51.3	7.3	—	278	142
Sole—									
Including skin ..	15.2	1.5	—	763	69.0	6.8	—	346	152
Excluding skin ..	13.0	1.3	—	654	59.0	5.9	—	297	
Sole, Lemon—									
Including skin ..	14.3	0.7	—	551	64.9	3.2	—	250	151
Excluding skin ..	11.5	0.3	—	499	52.2	1.4	—	226	
Sprats, fresh—									
Including skin ..	12.6	10.7	—	1,512	57.2	48.3	—	686	141
Sprats, smoked—									
Including skin ..	21.2	14.9	—	2,255	96.2	67.6	—	1,023	141

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## SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo-hydrate.		Protein.	Fat.	Carbo-hydrate.		
<i>Fruits, Dried</i> —continued—	Gm.	Gm.	Gm.	Calories.	Gm.	Gm.	Gm.	Calories.	209-210
Dates (1) ... ..	1.6	0.1	69.7	2,933	7.3	0.4	316.2	1,330	
" less 15 per cent. for stone...	1.4	0.1	59.2	2,494	6.3	0.4	268.5	1,131	
" (2) ... ..	1.6	0.2	66.8	2,823	7.3	0.9	303.0	1,281	
" less 11 per cent. for stone	1.4	0.2	59.4	2,511	6.3	0.9	269.4	1,139	
Figs ... ..	2.0	0.5	56.5	2,455	9.1	2.3	256.3	1,109	
Pear, candied ... ..	0.3	0.1	66.8	2,760	1.4	0.4	303.0	1,252	
Prunes ... ..	3.0	0.3	40.4	1,807	13.6	1.4	193.2	820	
" less 16.2 per cent. for stone	2.5	0.2	33.9	1,511	11.3	0.9	153.8	685	
Raisins ... ..	2.2	0.3	61.2	2,627	10.0	1.4	277.6	1,192	
Sultanas ... ..	1.7	0.3	64.9	2,759	7.7	1.4	294.4	1,232	
<i>Fruits, Fresh</i> (Mean Figures)—									196-208
Apples—									
Edible part ... ..	0.3	0.2	10.8	471	1.3	0.9	49.0	214	201
" less 9.2 per cent. waste ...	0.3	0.2	9.8	432	1.3	0.9	44.4	196	205
Bananas—									
Edible part ... ..	1.2	0.1	24.9	1,077	5.4	0.4	112.9	489	201
" less 43.3 per cent. waste	0.6	0.1	14.1	614	2.7	0.4	64.0	279	205
Blackberries, edible part, 100 per cent....	1.3	0.2	7.0	358	5.9	0.9	31.7	162	201



## SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo- hydrate.		Protein.	Fat.	Carbo- hydrate.		
<i>Fruits, Fresh</i> —continued—									
Nectarines—									
Edible part	0.8	0.1	9.0	411	3.6	0.4	40.8	186	196-208
less 5.3 per cent. waste	0.8	0.1	8.5	391	3.6	0.4	38.6	177	203
Oranges—									
Edible part	0.8	0.1	8.8	403	3.6	0.4	39.9	182	203
less 25.1 per cent. waste	0.6	0.1	6.6	303	2.7	0.4	29.9	137	207
Peaches—									
Edible part	0.8	0.1	4.7	235	3.6	0.4	21.3	107	204
less 7.0 per cent. waste	0.7	0.1	4.4	218	3.2	0.4	20.0	99	207
Pears—									
Edible part	0.3	0.1	8.4	366	1.4	0.4	38.1	166	204
less 12.3 per cent. waste	0.3	0.1	7.4	324	1.4	0.4	33.6	147	207
Pineapple—									
Edible part	0.5	0.0	11.1	476	2.3	0.0	50.3	216	204
less 32.7 per cent. waste	0.3	0.0	7.5	320	1.4	0.0	34.0	145	207
Plums—									
Edible part	0.5	0.3	8.2	377	2.3	1.4	37.2	171	204
less 5.1 per cent. waste	0.5	0.3	7.8	362	2.3	1.4	35.4	164	208
Pumpkin section—									
Edible part	0.4	0.0	2.8	131	1.8	0.0	12.7	59	204
less 33.5 per cent. waste	0.3	0.0	1.9	90	1.4	0.0	8.6	41	208



## SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	Per cent.			Energy Value per kilo.			Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo-hydrate.	Protein.	Fat.	Carbo-hydrate.	Protein.	Fat.	Carbo-hydrate.		
<i>Meat</i> —continued—											
<i>Mutton</i> —											
Whole carcass ... ..	12.4	41.5	—	—	—	—	56.2	188.2	—	1,981	42-51 49
" less 10 per cent. for more bone ... ..	11.1	37.3	—	—	—	—	50.4	169.2	—	1,780	49
Sheep's head ... ..	7.1	11.4	—	—	—	—	32.2	51.7	—	613	49
<i>Pork</i> —											
All flesh, bone allowed for ... ..	14.9	24.5	—	—	—	—	67.6	111.1	—	1,310	57-66 65
Whole head ... ..	14.1	27.0	—	—	—	—	64.0	122.5	—	1,401	63
Trotter ... ..	14.0	11.0	—	—	—	—	63.5	49.9	—	724	63
Whole carcass ... ..	14.8	24.5	—	—	—	—	67.1	111.1	—	1,309	65
<i>Veal</i> —											
Forequarter ... ..	19.6	4.1	—	—	—	—	88.9	18.6	—	538	32-41 34
" less 16 per cent. bone ... ..	16.4	3.4	—	—	—	—	74.4	15.4	—	449	36
Hindquarter ... ..	20.4	2.7	—	—	—	—	92.5	12.3	—	494	34
" less 14 per cent. bone ... ..	17.5	2.3	—	—	—	—	79.4	10.4	—	422	34
Loin ... ..	19.7	13.3	—	—	—	—	89.4	60.3	—	928	36
" less 12.5 per cent. bone ... ..	17.2	11.6	—	—	—	—	78.0	52.6	—	809	36
Carcass, bone allowed for ... ..	17.9	5.0	—	—	—	—	81.2	22.7	—	544	36
Whole head ... ..	8.4	4.0	—	—	—	—	38.1	18.1	—	325	37
Foot ... ..	11.0	8.3	—	—	—	—	49.9	37.7	—	555	37
Tail ... ..	19.5	9.0	—	—	—	—	88.5	40.8	—	743	37



82-83

213-215

<i>Milk</i> —		26.5	12.1	45.0	4,053	120.2	54.9	204.1	1,838
Dried, Skim	...	...	...	...	...	...	...	...	...
" Whole	...	24.5	24.2	35.1	4,688	110.1	109.8	159.2	2,126
Fresh	...	3.3	3.6	4.8	668	15.0	16.3	21.8	303
" per pint = 20 oz. or 1½ lb.	...	—	—	—	—	18.7	20.4	27.2	378
<i>Nuts</i> —									
<i>Edible part</i> —									
Almond—									
Jordan	...	22.0	52.2	15.5	6,392	99.8	236.8	70.3	2,899
Valencia	...	18.6	56.4	15.2	6,631	84.4	255.8	68.9	3,008
In shell	...	15.7	57.2	17.4	6,677	71.2	259.5	78.9	3,029
Mean	...	18.8	55.3	16.0	6,567	85.3	250.8	72.6	2,979
Brazil	...	13.2	70.4	8.1	7,421	59.9	319.3	36.7	3,366
Chestnut	...	3.0	1.9	48.2	2,276	13.6	8.6	218.6	1,032
Coconut—									
Flesh	...	4.2	48.5	7.7	4,998	19.0	220.0	34.9	2,267
Milk	...	0.2	—	5.2	221	0.9	—	23.6	100
Cob or filbert	...	14.3	51.6	17.8	6,115	64.9	234.1	80.7	2,774
Hazel	...	13.2	63.2	14.3	7,005	59.9	286.7	64.9	3,178
Peanut	...	20.1	47.6	22.1	6,157	91.2	215.9	100.2	2,793
Pine kernels	...	31.4	48.0	10.6	6,186	142.4	217.7	48.1	2,806
Walnuts—									
Dried	...	13.6	66.4	14.0	7,307	61.7	301.2	63.5	3,314
" in shell	...	20.7	58.9	13.8	6,892	93.9	267.2	62.6	3,126
Fresh	...	15.8	58.8	11.1	6,571	71.7	266.7	50.4	2,981
Mean, excluding chestnut and coconut milk	...	16.5	56.9	13.6	6,526	74.8	258.1	61.7	2,960

SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo- hydrate.		Protein.	Fat.	Carbo- hydrate.		
	Gm.	Gm.	Gm.	Calories.	Gm.	Gm.	Gm.	Calories.	
<i>Nuts, whole, as purchased—</i>									213-215
Almond in shell ...	4.7	17.0	5.2	1,987	21.3	77.1	23.6	901	
Brazil ...	7.0	37.4	4.3	3,942	31.7	169.7	19.5	1,788	
Chestnut ...	2.6	1.6	41.2	1,945	11.8	7.3	186.9	882	
Coconut—									
Flesh ...	2.1	24.9	3.9	2,562	9.5	112.9	17.7	1,162	
Milk ...	0.0	—	1.0	41	0.0	—	4.5	19	
Whole interior ...	2.1	24.9	4.9	2,603	9.5	112.9	22.2	1,181	
Cob or filbert ...	5.8	20.9	7.2	2,477	26.3	94.8	32.7	1,124	
Peanut ...	13.9	33.0	15.3	4,266	63.0	149.7	69.4	1,935	
Walnuts—									
Dried, in shell ...	9.3	26.5	6.2	3,100	42.2	120.2	28.1	1,406	
Fresh, in shell ...	6.4	23.9	4.5	2,670	29.0	108.4	20.4	1,211	
<i>Offal—</i>									
Diaphragm, or back vein or thick skirt—									
Calf ...	17.7	6.6	—	1,340	80.3	29.9	—	608	35
Ox ...	18.5	19.7	—	2,591	83.9	89.4	—	1,175	21
Diaphragm, or thin skirt—									
Calf ...	17.5	5.5	—	1,229	79.4	25.0	—	558	35
Ox ...	17.9	25.3	—	3,087	81.2	114.8	—	1,400	21

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SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo-hydrate.		Protein.	Fat.	Carbo-hydrate.		
Offal—continued—									
Suet—									
Calf	5.1	79.2	—	7,575	23.1	359.3	—	3,436	35
Ox	1.2	93.3	—	8,726	5.4	423.2	—	3,958	21
Sheep	1.3	96.6	—	9,037	5.9	438.2	—	4,099	45
Trachea—									
Calf	16.8	10.8	—	1,693	76.2	49.0	—	768	35
Ox	21.6	9.0	—	1,723	98.0	40.8	—	782	21
Pig	15.7	23.3	—	2,811	71.2	105.7	—	1,275	60
Sheep	17.5	26.1	—	3,145	79.4	118.4	—	1,427	45
Tripe—									
Calf—									
Rumen	13.7	1.8	—	731	62.1	8.2	—	332	38
Omasum	4.0	0.4	—	201	18.1	1.8	—	91	39
Abomasum	9.0	3.7	—	713	40.8	16.8	—	323	39
Rectum	10.5	2.4	—	654	47.6	10.9	—	297	39
Ox—									
Rumen	15.8	2.1	—	843	71.7	9.5	—	382	27
Omasum	7.7	0.3	—	344	34.9	1.4	—	156	21
Abomasum	5.0	1.0	—	298	22.7	4.5	—	135	27
Rectum	6.8	15.4	—	1,711	30.8	69.8	—	776	27
Heartbread or kernel—									
Calf	18.3	4.9	—	1,206	83.0	22.2	—	547	35



SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	—	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
		Protein.	Fat.	Carbo- hydrate.		Protein.	Fat.	Carbo- hydrate.		
<i>Pulses—</i>										
Bean—		Gm.	Gm.	Gm.	Calories.	Gm.	Gm.	Gm.	Calories.	184-185
Butter	...	18.6	0.7	62.2	3,378	84.4	3.2	282.1	1,532	
Haricot, small	...	17.8	0.5	64.5	3,421	80.7	2.3	292.6	1,552	
" large	...	16.7	1.7	61.3	3,356	75.7	7.7	278.1	1,522	
Brown and white	...	19.2	1.3	61.7	3,438	87.1	5.9	279.9	1,560	
Light brown	...	19.2	1.0	63.2	3,471	87.1	4.5	286.7	1,574	
Dark brown	...	18.9	1.0	62.5	3,430	85.7	4.5	283.5	1,556	
Scarlet runner	...	15.2	2.1	62.8	3,393	68.9	9.5	284.9	1,539	
French dwarf	...	20.6	1.1	60.0	3,407	93.4	5.0	272.2	1,545	
Black	...	16.4	1.4	64.0	3,427	74.4	6.3	290.3	1,555	
Broad	...	23.9	1.3	54.5	3,335	108.4	5.9	247.2	1,513	
Mean	...	—	—	—	3,406	—	—	—	1,545	
Soya	...	33.7	18.3	32.5	4,416	152.9	83.0	147.4	2,003	
Lentil—										
Flour	...	21.4	0.9	63.5	3,565	97.1	4.1	288.0	1,617	
Whole brown	...	22.2	0.5	59.7	3,404	100.7	2.3	270.6	1,544	
Split red	...	20.1	0.4	63.9	3,481	91.2	1.8	289.8	1,579	
" Russian	...	21.4	0.6	63.0	3,516	97.1	2.7	285.8	1,595	
Mean	...	—	—	—	3,492	—	—	—	1,584	

Pea—	...	20.4	0.6	57.1	3,233	92.5	2.7	259.0	1,467
Whole green	...	...	...	62.4	3,539	100.2	3.6	283.0	1,605
Split, green	...	22.1	0.8	63.0	3,486	92.1	3.2	285.8	1,579
"    yellow	...	20.3	0.7	64.2	3,660	99.3	6.3	291.2	1,660
Flour	...	21.9	1.4	...	...	...	...	...	...
Mean	...	...	...	...	3,478	...	...	...	1,578
Sausage	...	11.2	17.7	15.2	2,730	50.8	80.3	68.9	1,238
Sugar—	...	...	...	98.0	4,018	...	...	444.5	1,823
Brown	...	...	...	100.0	4,100	...	...	453.6	1,860
White	...	...	...	...	...	...	...	...	...
Syrup, Golden	...	0.3	...	76.4	3,145	1.4	...	346.6	1,427
Treacle...	...	1.6	...	59.9	2,522	7.3	...	271.7	1,144
Vegetables, fresh—	...	...	...	...	...	...	...	...	...
Artichoke—	...	...	...	...	...	...	...	...	...
Jerusalem, whole	...	1.9	0.03	17.4	794	8.6	0.14	78.9	360
Green—	...	...	...	...	...	...	...	...	...
" Fond "	...	3.5	0.10	7.3	452	15.9	0.40	33.1	205
Edible part leaf	...	2.0	...	14.2	664	9.1	0.00	64.4	301
" Fond," less leaf	...	0.5	0.01	1.0	62	2.3	0.04	4.5	28
Edible part leaf, less other leaf	...	0.4	...	2.6	123	1.8	0.00	11.8	56
Whole ...	...	2.5	0.01	8.6	456	11.3	0.04	39.0	207
Asparagus—	...	...	...	...	...	...	...	...	...
Edible part	...	3.1	0.05	4.25	306	14.1	0.23	19.3	139
Stalk	...	1.8	0.09	4.81	279	8.2	0.40	21.8	127
Edible part less stalk	...	1.3	0.02	1.8	129	5.9	0.09	8.2	59
Whole	...	2.3	0.07	4.5	285	10.4	0.32	20.4	129

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## SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

—	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo-hydrate.		Protein.	Fat.	Carbo-hydrate.		
Gm.	Gm.	Gm.	Calories.	Gm.	Gm.	Gm.	Calories.		
<i>Vegetables, fresh—continued—</i>									157-183
Aubergine or egg plant, whole ...	0.6	0.10	4.3	210	2.7	0.40	19.5	95	165
Batavia—									
Edible inside leaves ...	1.4	0.10	3.3	202	6.4	0.45	15.0	92	167
Outside leaves ...	0.8	0.10	3.7	194	3.6	0.45	16.8	88	
Edible inside leaves, less outside and stalk ...	0.8	0.05	1.8	111	3.6	0.23	8.2	50	180
Whole ...	1.1	0.09	3.4	193	5.0	0.40	15.4	88	
Beans—									
Broad—									
Raw edible part ...	6.9	0.30	19.0	1,090	31.3	1.40	86.2	494	170
Cooked edible part ...	6.1	0.20	14.1	847	27.7	0.90	64.0	384	
Raw, less waste ...	2.5	0.10	6.8	391	11.2	0.50	30.9	177	171
Whole as purchased...	3.5	0.20	13.5	716	15.9	0.90	61.2	325	
French—									
Raw, as eaten ...	1.9	0.10	4.8	284	8.6	0.40	21.8	129	162
" less waste ...	1.7	0.10	4.4	259	7.8	0.40	19.9	118	171
Scarlet runner—									
Edible part ...	1.3	0.10	3.9	223	5.9	0.40	17.7	101	162
" less waste ...	1.2	0.10	3.6	206	5.4	0.40	16.2	93	171





## SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo-hydrate.		Protein.	Fat.	Carbo-hydrate.		
	Gm.	Gm.	Gm.	Calories.	Gm.	Gm.	Gm.	Calories.	
<i>Vegetables, fresh</i> —continued—									157-183
Carrot—									
Edible part (1) ...	0.9	0.10	8.0	374	4.1	0.45	36.3	170	163
" (2) ...	1.5	0.10	11.2	530	6.8	0.45	50.8	240	
Mean ...	1.2	0.10	9.6	452	5.4	0.45	43.6	205	
Leaf ...	2.4	0.30	12.1	622	10.9	1.36	54.9	282	163
Whole plant ...	1.7	0.14	11.4	550	7.7	0.60	51.7	250	173
Cauliflower—									
Flower and edible leaf ...	1.9	0.20	5.0	338	8.6	0.90	26.8	153	166
Outside leaf and stalk ...	1.1	0.10	6.7	329	5.0	0.40	30.4	149	
Flower and edible leaf, less stalk, etc.	1.0	0.10	3.1	177	4.5	0.40	14.1	80	178
Whole ...	1.5	0.15	6.3	334	6.8	0.70	28.6	152	
Celery—									
Edible part stalk ...	0.6	0.10	3.8	190	2.8	0.45	17.2	86	167
Leaf ...	2.0	0.10	5.7	325	9.1	0.45	25.9	147	
Edible part stalk, less leaf, etc.	0.5	0.09	3.4	168	2.3	0.40	15.4	76	179
Whole ...	0.7	0.10	4.1	206	3.2	0.45	18.6	93	
Corn salad—									
Edible leaf ...	1.8	0.20	3.0	215	8.2	0.90	13.6	98	167
" less roots ...	1.7	0.20	2.9	207	7.7	0.90	13.1	94	181

	2.1	0.40	1.8	197	9.5	1.80	8.2	89	167
Cress, whole	...	...	...	...	...	...	...	...	...
Cucumber—	...	...	...	...	...	...	...	...	...
Edible part	...	...	...	...	...	...	...	...	...
Skin	0.6	0.07	2.0	113	2.7	0.31	9.1	51	166
Edible part, less skin	0.8	0.10	2.5	145	3.6	0.45	11.3	66	166
Whole	0.5	0.07	1.6	93	2.7	0.32	7.3	42	178
Curly kale—	0.6	0.10	2.0	116	2.7	0.40	9.1	53	178
Edible part leaf...	...	...	...	...	...	...	...	...	...
less stalk, etc.	3.9	0.40	8.8	558	17.7	1.80	39.9	253	169
Endive—	2.7	0.30	6.1	389	12.2	1.40	27.7	176	183
Inside leaf, edible part	...	...	...	...	...	...	...	...	...
Outside leaf	1.7	0.10	2.9	198	7.7	0.45	13.1	90	168
Inside leaf, less outside	1.4	0.10	2.6	173	6.4	0.45	11.8	79	168
Whole	1.3	0.07	2.1	146	5.9	0.32	9.5	66	181
Garlic—	1.7	0.10	2.8	194	7.7	0.45	12.7	88	181
Edible part	...	...	...	...	...	...	...	...	...
less skin	4.7	0.10	29.0	1,391	21.3	0.40	131.5	631	165
Whole	4.3	0.09	26.6	1,275	19.5	0.40	120.7	578	176
Kohlrabi—	4.5	0.15	30.4	1,445	20.4	0.70	137.9	656	176
Edible part	...	...	...	...	...	...	...	...	...
less scrapings	2.2	0.03	4.5	277	10.0	0.14	20.4	126	163
Whole root	1.7	0.02	3.4	211	7.7	0.09	15.4	96	163
plant	2.5	0.04	5.2	319	11.3	0.18	23.6	145	173
Leek—	2.5	0.22	5.9	365	11.3	1.00	26.8	166	173
Edible part	...	...	...	...	...	...	...	...	...
less leaf, rootlets	2.5	0.10	9.3	495	11.3	0.40	42.2	225	165
Whole plant	1.1	0.04	4.1	217	5.0	0.18	18.6	98	177
Lettuce—	2.2	0.15	7.4	408	10.0	0.70	33.6	185	177
Edible inside leaves	...	...	...	...	...	...	...	...	...
Outside leaves	1.1	0.20	1.9	142	5.0	0.90	8.6	64	168
Edible inside, less outside leaves	0.7	0.20	2.3	142	3.2	0.90	10.4	64	168
Whole	0.7	0.13	1.2	90	3.2	0.59	5.4	41	181
...	1.0	0.20	2.0	142	4.5	0.90	9.1	64	181

## SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo- hydrate.		Protein.	Fat.	Carbo- hydrate.		
	Gm.	Gm.	Gm.	Calories.	Gm.	Gm.	Gm.	Calories.	157-183
<i>Vegetables, fresh—continued—</i>									
Marrow—									
Green—									
Edible part ... ..	0.4	0.05	5.2	234	1.8	0.23	23.6	106	166
" less seed part and skin ...	0.3	0.03	3.5	159	1.4	0.10	15.9	72	178
Whole ... ..	0.7	0.08	5.3	253	3.2	0.36	24.0	115	
Yellow—									
Edible part ... ..	0.2	0.06	2.2	104	0.9	0.27	10.0	47	166
" less seed part and skin ...	0.1	0.03	1.2	56	0.45	0.10	5.4	25	179
Whole ... ..	0.5	0.10	2.9	149	2.3	0.40	13.2	68	
Mushroom—									
Flesh ... ..	4.5	0.20	2.0	285	20.4	0.90	9.1	129	167
Stalk ... ..	4.4	0.10	2.6	296	20.0	0.45	11.8	134	
Flesh and stalk, less skin	4.1	0.17	1.0	262	18.0	0.77	8.6	119	180
Whole ... ..	4.7	0.20	2.3	306	21.3	0.90	10.4	139	180
Mustard, whole (mean of 2)	1.3	0.30	1.8	155	5.9	1.40	8.2	70	168
Onions—									
English—									
Edible part ... ..	1.3	0.10	10.8	505	5.9	0.40	49.0	229	165
" less skin	1.23	0.10	10.3	482	5.6	0.40	46.7	219	177
Whole ... ..	1.3	0.12	11.1	520	5.9	0.50	50.6	236	

<b>Spanish—</b>	...	0·6	0·04	4·1	196	2·7	0·2	18·6	89	165
Eddible part ... less skin	...	0·59	0·04	4·0	192	2·7	0·2	18·1	87	177
Whole ...	...	0·6	0·06	4·6	219	2·7	0·3	20·9	99	
<b>Parsley—</b>										
Leaf ...	...	3·8	0·70	11·6	697	17·2	3·2	52·6	316	168
Stalk ...	...	1·4	0·30	11·8	569	6·4	1·4	53·5	258	
Leaf, less stalk	...	2·7	0·51	8·4	503	12·2	2·3	38·1	228	181
Whole ...	...	3·1	0·60	11·7	662	14·1	2·8	53·1	300	
<b>Parsnip—</b>										
Eddible part, root	...	1·7	0·50	21·1	981	7·7	2·3	95·7	445	163
" " less scrapings	...	1·5	0·40	18·3	849	6·8	1·8	83·0	385	173
Whole root (mean of 2)	...	1·8	0·47	19·4	910	8·2	2·1	87·8	413	174
" plant	...	1·7	0·40	16·7	792	7·7	1·8	75·7	359	
<b>Peas—</b>										
Green—										
Raw, edible part	...	5·4	0·50	15·2	891	24·5	2·3	68·9	404	170
Cooked, edible part...	...	4·6	0·60	13·3	790	20·9	2·7	60·3	358	
Raw, less waste	...	2·3	0·20	6·5	379	10·4	1·0	29·3	172	171
Whole, as purchased	...	3·3	0·20	10·3	576	15·0	1·0	46·7	261	
<b>Potatoes—</b>										
New—										
Raw—										
Tuber	...	1·6	0·02	21·0	928	7·3	0·1	95·2	421	163
Skin...	...	2·8	0·40	7·9	476	12·7	1·8	35·8	216	
Tuber, less skin	...	1·6	0·02	20·4	904	7·3	0·1	92·5	410	171
Whole	...	1·7	0·03	20·6	917	7·7	0·1	93·4	416	

## SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo- hydrate.		Protein.	Fat.	Carbo- hydrate.		
<i>Vegetables, fresh—continued—</i>									
<i>Potatoes—continued.</i>									
Old—									157-183
Raw—									
Tuber ... ..	2.1	0.03	19.6	893	9.5	0.10	88.9	495	163
Skin... ..	2.9	0.30	11.1	602	13.1	1.40	50.3	273	
Tuber, less skin ... ..	1.9	0.03	18.1	823	8.6	0.10	82.1	373	172
Whole ... ..	2.1	0.05	19.0	870	9.5	0.20	86.2	395	
Mean, whole old and new ...	1.9	0.04	19.8	894	8.6	0.20	89.8	406	
Mean, tuber, less 5 per cent. for skin ... ..	1.8	0.04	18.8	849	8.2	0.20	85.3	386	
Mean, tuber only ... ..	1.85	0.02	20.3	910	8.4	0.10	92.0	413	
Radish—									164
Edible part ... ..	0.6	0.04	3.26	162	2.7	0.18	14.8	74	
" ... ..	1.0	0.10	3.40	190	4.5	0.45	15.4	86	
Mean ... ..	0.8	0.07	3.33	176	3.6	0.32	15.1	80	

Edible part	...	...	...	0.2	0.01	0.9	46	0.9	0.04	4.1	21	174
" less leaf	...	...	...	0.5	0.05	1.5	87	2.3	0.20	6.8	40	
Mean	...	...	...	0.35	0.03	1.2	67	1.6	0.12	5.4	30	
Whole plant	...	...	...	1.8	0.10	2.6	190	8.2	0.45	11.8	86	174
"	...	...	...	1.9	0.31	2.8	221	8.6	1.41	12.7	100	
Mean	...	...	...	1.9	0.20	2.7	206	8.4	0.93	12.3	93	
Rhubarb—												
Stem, edible part	...	...	...	0.6	0.07	3.63	180	2.7	0.32	16.5	82	167
" less leaf	...	...	...	0.5	0.06	3.0	149	2.3	0.27	13.6	68	179
Salsify—												
Edible part root	...	...	...	2.8	0.10	17.9	858	12.7	0.45	81.2	389	164
" less scrapings	...	...	...	2.4	0.09	15.6	746	10.9	0.40	70.8	338	175
Whole root	...	...	...	2.7	0.25	17.2	839	12.2	1.13	78.0	381	
" plant	...	...	...	2.6	0.45	12.8	673	11.8	2.04	58.1	305	
Scorzonera—												
Edible part root	...	...	...	3.9	0.20	19.9	994	17.7	0.91	90.3	451	164
" less scrapings	...	...	...	3.1	0.16	15.9	794	14.1	0.73	72.1	360	175
Whole root	...	...	...	3.6	0.32	20.6	1,022	16.3	1.45	93.4	464	
Seakale—												
Edible part	...	...	...	1.5	0.03	3.77	219	6.8	0.14	17.1	99	167
" less root	...	...	...	1.2	0.02	2.9	170	5.4	0.09	13.2	77	180
Whole	...	...	...	1.7	0.04	4.4	254	7.7	0.18	20.0	115	

SUMMARY OF ANALYSES FOR ARMY USE AND INDEX—continued.

	Per cent.			Energy Value per kilo.	Per lb.			Energy Value per lb.	Index Page.
	Protein.	Fat.	Carbo- hydrate.		Protein.	Fat.	Carbo- hydrate.		
<i>Vegetables, fresh—continued—</i>	Gm.	Gm.	Gm.	Calories.	Gm.	Gm.	Gm.	Calories.	157-183
Spinach—									
Whole, edible ...	1.8	0.20	2.9	211	8.2	0.90	13.1	96	169
Perpetual—									
Leaf ...	1.7	0.10	2.6	186	7.7	0.45	11.8	84	169
" less stems ...	1.2	0.07	1.8	129	5.4	0.32	8.2	59	183
Whole ...	1.5	0.10	2.9	190	6.8	0.45	13.1	86	
Sprouting broccoli—									
Edible leaf ...	4.7	0.40	11.5	701	21.3	1.80	52.2	318	169
" less stalk ...	4.1	0.35	10.0	611	18.6	1.60	45.4	277	183
Swede—									
Edible part root ...	1.0	0.10	8.1	382	4.5	0.45	36.7	173	164
Skin and rootlets ...	2.6	0.10	8.5	464	11.8	0.45	38.6	211	
Leaf ...	2.2	0.30	6.7	393	10.0	1.36	30.4	178	
Edible part, root less skin ...	0.8	0.08	6.8	319	3.6	0.36	30.8	145	175
Whole root ...	1.2	0.10	8.1	391	5.4	0.45	36.7	177	
" plant ...	1.5	0.17	7.5	385	6.8	0.77	34.0	175	



Thousand heads—													
Edible leaf	...	...	...	4.5	0.40	10.4	648	20.4	1.80	47.2	294	} 160	
Stems	...	...	...	2.7	0.10	9.4	505	12.2	0.45	42.6	229		
Edible part, less stem and stalk	...	...	...	2.5	0.22	5.9	365	11.3	1.00	26.8	166	} 183	
Whole plant	...	...	...	3.5	0.26	9.3	549	15.9	1.20	42.2	249		
Tomatoes, whole	...	...	...	0.7	0.10	4.5	222	3.2	0.40	20.4	101	166	
Turnip—													
Edible part root	...	...	...	1.2	0.10	4.4	239	5.4	0.45	20.0	108	} 164	
Scrappings	...	...	...	2.5	0.10	4.6	300	11.3	0.45	20.9	136		
Leaves	...	...	...	2.4	0.20	4.8	314	10.8	0.90	21.8	142		
Edible part root, less scrapings	...	...	...	1.1	0.09	3.8	209	5.0	0.40	17.7	95	} 176	
Whole root	...	...	...	1.4	0.10	4.4	247	6.3	0.45	20.0	112		
„ plant	...	...	...	1.7	0.14	4.6	271	7.7	0.60	20.9	123		
Watercress—													
Leaf part	...	...	...	1.4	0.40	4.2	267	6.4	1.80	19.1	121	} 168	
Stem part	...	...	...	1.2	0.20	1.8	142	5.4	0.90	8.2	64		
Leaf, less stalk and stem	...	...	...	0.7	0.20	2.1	133	3.2	0.90	9.5	60	} 181	
Whole	...	...	...	1.3	0.30	3.0	204	5.9	1.40	13.6	93		

## APPENDIX.

## ACCESSORY FOOD FACTORS OR VITAMINES.

The accessory food factors, or vitamins, are present in certain *fresh* foods. If these foods be suitable and varied they will in most cases be sufficient. Attention must be given to the nature of the food, otherwise the symptoms of the deficiency diseases, namely, scurvy, rickets, beri-beri and pellagra, may appear. These diseases can be cured by taking the proper diet in each case. The accessory food factors, or vitamins, serve to maintain health. The researches of recent years point to the need of a daily intake of each vitamin. The accessory food factors play such an important part in adequate nutrition that the following tables showing their distribution (selected and re-arranged), from the Report of the Medical Research Committee (1919), are appended. They serve to show at a glance the good and bad foods in these categories.

*Common Foodstuffs containing No Accessory Food Factors.*

<i>Fats and Oils.</i>	<i>Meats, etc.</i>	<i>Cereals, etc.</i>
Lard.	Tinned.	White wheaten flour.
Olive oil.	Fish, white.	Pure cornflour.
Cottonseed oil.	Cheese (skim milk).	Polished rice.
Coconut oil.	Meat extracts.	Pea flour, kilned.
Coconut butter.	Malt extracts.	Oatmeal, kilned.
Linseed oil.	Preserved lime juice.	Custard powders.
Margarine from veg. fats.	Beer, wine.	Egg substitutes.

*Common Foodstuffs containing All Three Accessory Factors.*

Foodstuff.	Fat soluble A or Anti-rachitic.	Water soluble B or Anti-neuritic.	Water soluble C or Anti-scorbutic.
Cabbage, fresh ...	++	+	+++
„ „ cooked ...	+	+	+
Pulses, germinated ...	+	++	++
Cereals, germinated ...	+	++	++
Liver ...	++	++	+
Milk, cows', whole, raw	++	+	+
„ „ „ dried	++	+	-+*
„ „ „ boiled	++	+	-+
„ „ „ condensed, sweetened	+	+	+
Meat, lean ...	+	+	+
Carrots ...	+	+	+
Potatoes ...	+	+	+

\* Signifies less than +.

*Common Foodstuffs Rich in Fat Soluble A (Anti-rachitic).*

Butter ... ..	+++	Heart ... ..	++
Cod liver oil ... ..	+++	Herring ... ..	++
Cream ... ..	++	Mackerel ... ..	++
Egg yolk ... ..	++	Salmon ... ..	++
Wheat germ ... ..	++	Cabbage, raw ... ..	++
Beef or mutton fat ... ..	++	Lettuce ... ..	++
Fish oil ... ..	++	Spinach ... ..	++
Liver ... ..	++	Carrots ... ..	+

*Foodstuffs Rich in Water Soluble B (Anti-neuritic).*

Eggs, fresh and dried	+++	Fish roe ... ..	++
Wheat germ ... ..	+++	Linseed and millet ... ..	++
Dried yeast ... ..	+++	Dried pulses ... ..	++
Yeast extract and auto-lysed, "Marmite" ... ..	+++	Germinated pulses ... ..	++
Liver, brain, sweetbread	++	Nuts ... ..	++

*Common Foodstuffs Rich in Water Soluble C (Anti-scorbutic).*

Cabbage, raw ... ..	++++	Tomatoes, canned ... ..	++
Lemon juice, fresh ... ..	++++	Germinated pulses ... ..	++
Orange juice, fresh ... ..	++++	Cabbage cooked $\frac{1}{2}$ hr. at 100° C. ... ..	++
Tomatoes ... ..	++++	Lemon juice, preserved ... ..	++
Runner beans, raw pods	+++	Lime juice, fresh ... ..	++
Swede juice, fresh ... ..	+++	Carrot ... ..	+
Raspberries, fresh ... ..	++	Onion ... ..	+
Cloudberries, fresh ... ..	++	Rhubarb ... ..	+
Salads, cresses, etc. ... ..	++	Apples ... ..	-+
Cooked potatoes ... ..	+	Bananas ... ..	-+
Lean meat ... ..	-+	Grapes ... ..	-+
Raw milk ... ..	-+		
Beetroot ... ..	-+		

*Med. Res. Committee Report.*









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# ANALYSES AND ENERGY VALUE OF FOODS

BY

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